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R. E. Brock

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# The Commercial Fishery for Snapper, *Chrysophrys auratus* (Forster), in the Auckland Region, New Zealand, from 1900 to 1971

by
L. J. Paul

Fisheries Research Division
New Zealand Ministry of Agriculture and Fisheries

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[Top photograph by courtesy of Auckland Institute and Museum.

Frontispiece: The Auckland fishing industry's changing image. Above: Mending nets on Wynyard Pier in the early 1900s. Below: Nets, seiners, and trawlers at one of the main fishing wharves in the early 1970s.

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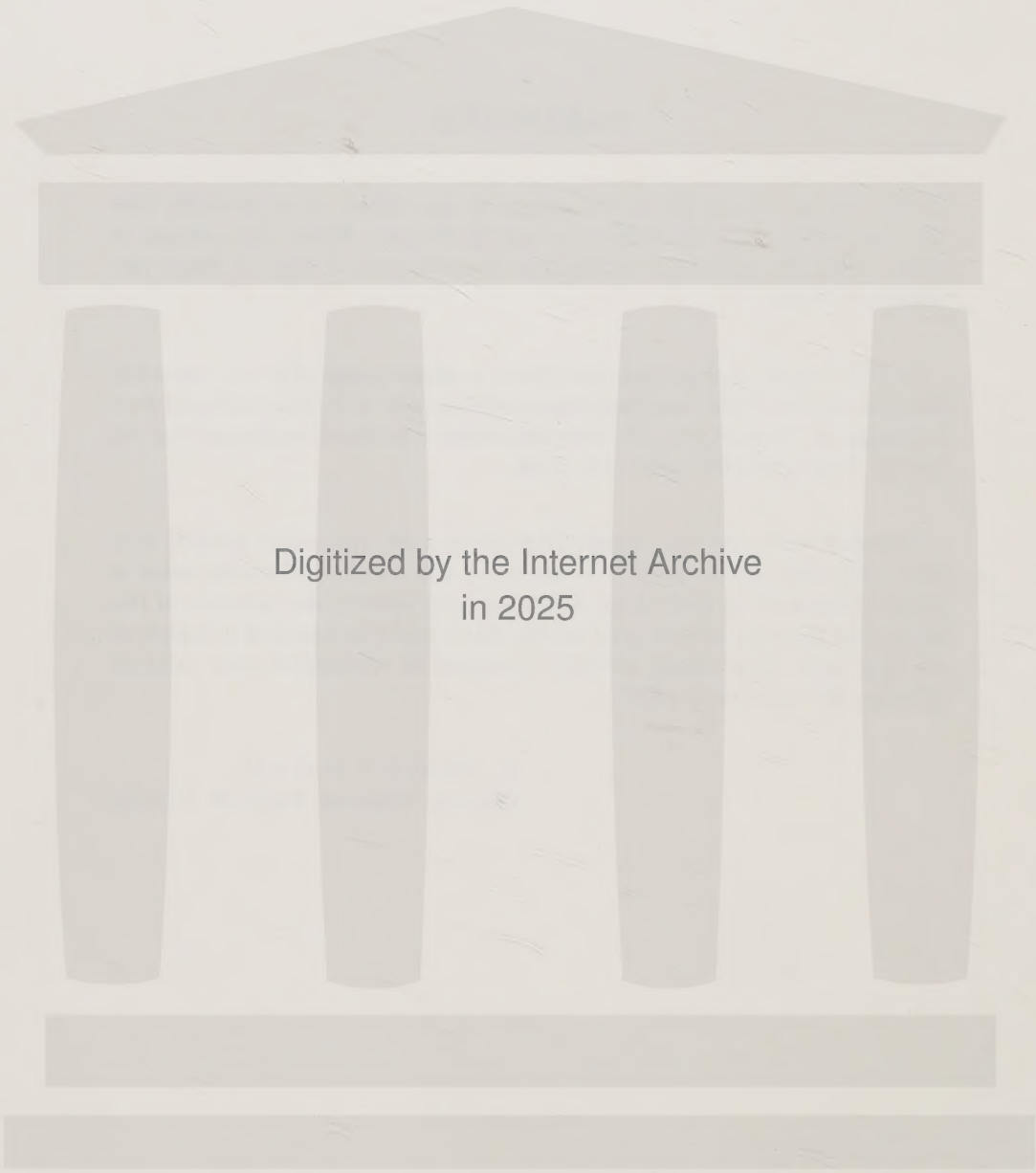
# FOREWORD

IN the attempt to predict future trends in any fishery it is inevitable that reference will have to be made to events of the past. Where data relating to earlier situations are scarce or sketchy, interpretation of them is made particularly difficult.

In this bulletin Larry Paul has made a considerable effort to assemble historical details of the Auckland snapper fishery and to illustrate not only how it changed in 70 years, but also how the complex series of regulations that are now in force gradually came into being.

The data which he has gleaned from the records and which indicate how catch rates and yields varied over the years will be of considerable value to future workers in the field. What the records also show is the resilience of this fishery and the high level of productivity that it might be expected to sustain in the long term, even though periodic variations in recruitment may exert an influence on short-term yields.

G. DUNCAN WAUGH,
Director, Fisheries Research Division



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# INTRODUCTION

The snapper, *Chrysophrys auratus* (Forster), which is really a sea bream (family Sparidae), is New Zealand's most valuable marine fish. Since the beginning of European settlement it has been caught by various fishing methods throughout its range—the northern half of New Zealand—in sufficient quantity to support a major commercial fishery (Fig. 1).

In 1971 snapper contributed about one-third by weight of the total wetfish landings: 277 397 cwt (14 092 tonnes) at a landed value of $2 157 286 (Fig. 2). It has nearly always ranked first in marine fish landings. In 1971, 139 334 cwt (7078 tonnes), almost exactly half of the New Zealand snapper landings, was taken from the Hauraki Gulf and landed at Auckland, Thames, and Coromandel. Boats from these ports, however, also work fishing grounds beyond the Hauraki Gulf, and in 1971 they landed a total of 165 433 cwt (8405 tonnes) of snapper from the Gulf and other grounds.

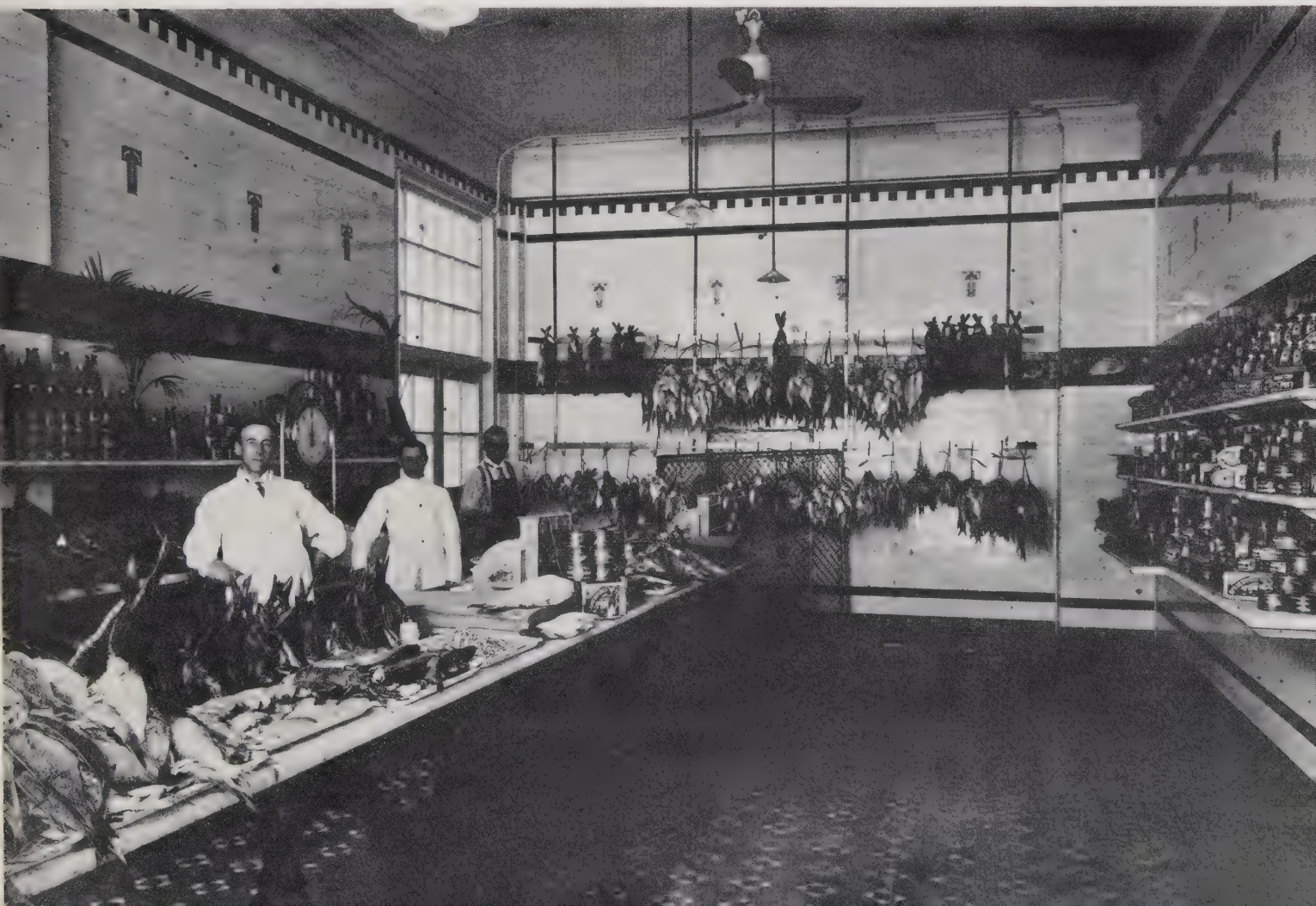
Auckland has a second fishing port at Manukau Harbour, from where fishing vessels are able to work the north-western coast of the North Island. Snapper landed into the two ports of Auckland, plus Thames and Coromandel, therefore make up almost two-thirds of the total New Zealand snapper landings (Figs. 3 and 4). This fishery, or complex of fisheries, comes second in New Zealand only to the rock lobster (*Jasus* spp.) fishery in monetary value, both in capital investment and annual turnover. Some understanding of this fishery is therefore needed to maintain a sensible exploitation of the stock and to manage it effectively should problems arise.

Recent studies on the biology of the snapper have been published elsewhere: Godfriaux (1969, 1970), Colman (1972), Paul (1976), Crossland (1976, 1977), and Vooren and Coombs (1977).

This bulletin reviews the known historical trends in the fishery to 1971 to determine whether the fluctuations in snapper landings (Figs. 5 and 6) can be explained simply by economic factors within the fishing industry itself or whether they might also be

Fig. 1: The snapper has always been an important commercial species in northern New Zealand. Fresh and smoked snapper are prominent in this Auckland fish shop, photographed in the 1920s.

[By courtesy of Sanford Ltd.



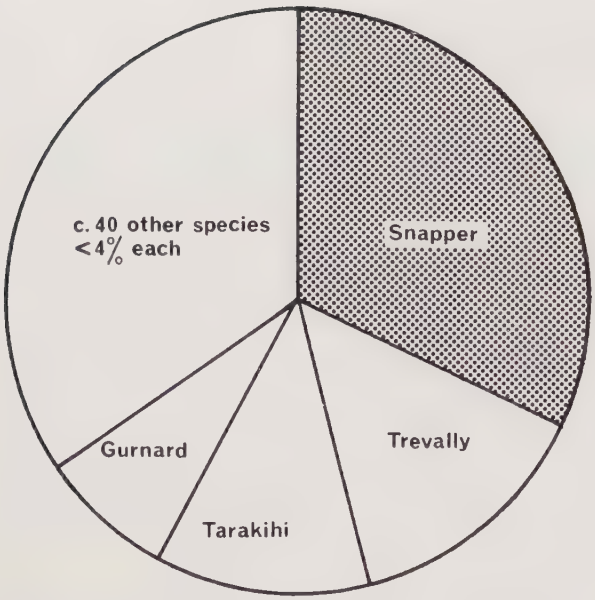



Fig. 2: New Zealand total wetfish landings by weight, 1971, showing the relative importance of snapper.

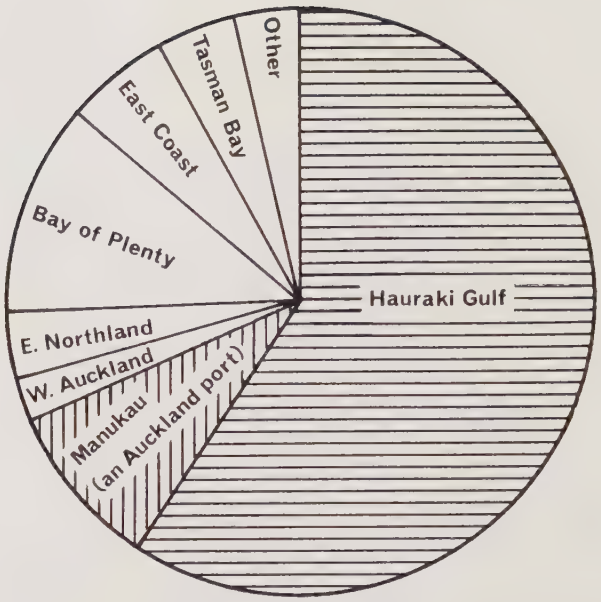



Fig. 3: New Zealand snapper landings by weight, 1971, showing the relative importance of Auckland ports (Hauraki Gulf ports and Manukau).

caused by variations in the annual and seasonal abundance of snapper.

Although this work deals mainly with the Hauraki Gulf fishery, some reference to snapper fishing in other areas, particularly west Auckland, east Northland, and the Bay of Plenty, is relevant. Furthermore, fisheries for other species are discussed where they have some relationship with the snapper fishery.

This bulletin concentrates on trends in the snapper catch, in the fishing effort expended, and the resultant catch per effort.

Although "catch" refers to the fish caught in a fishing operation, and "landing" to the quantity of fish brought ashore for sale, in many fisheries for valuable species the terms are virtually synonymous, all the catch being landed. This has always been true for legal-sized (over 10 in. (25 cm) in fork length) snapper in the Auckland fishery. An unknown quantity of smaller snapper is caught and discarded at sea, but the lack of records prevents any further consideration of this point. Strictly, the statistics in this bulletin are of snapper "landings", but the term "catch" is also used, usually in conjunction with "catch per effort", where the use of "landing" would appear incongruous. For the Auckland snapper fishery the two terms can be regarded as synonymous. Both terms are used, without explanation, in the *Report on Fisheries* issued by the Ministry of Agriculture and Fisheries and formerly by the Marine Department.

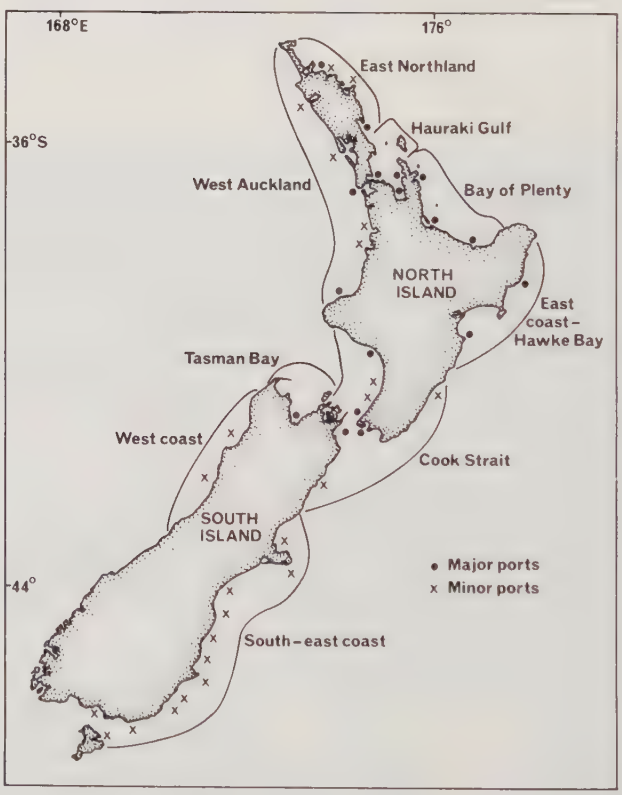
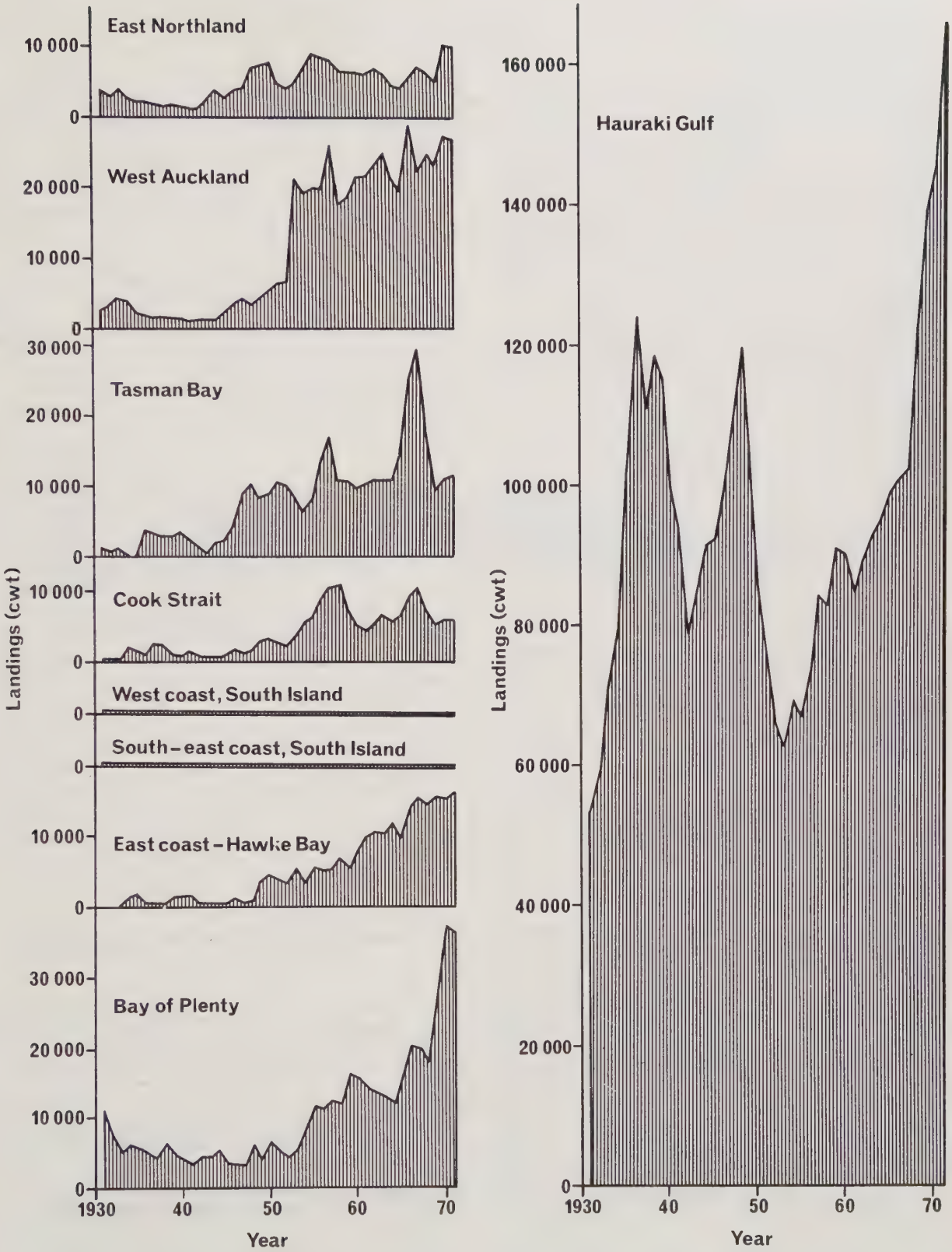



Fig. 4 (above and right): Landings of snapper by region, 1931-71, showing the relative importance of ports in the Auckland area, particularly those in the Hauraki Gulf. The groupings are by ports within each region, not fishing grounds actually worked. The map shows the port groupings, which are almost the same as the Marine Department fishing areas, but in several regions two or more of the original areas have been combined.


East Northland
10 000
0
West Auckland
20 000
10 000
0
Tasman Bay
30 000
20 000
10 000
0
Cook Strait
10 000
0
West coast, South Island
0
South – east coast, South Island
0
East coast – Hawke Bay
10 000
0
Bay of Plenty
30 000
20 000
10 000
0
1930
40
50
60
70
Year
Landings (cwt)
Hauraki Gulf
160 000
140 000
120 000
100 000
80 000
60 000
40 000
20 000
0
1930
40
50
60
70
Year
Landings (cwt)

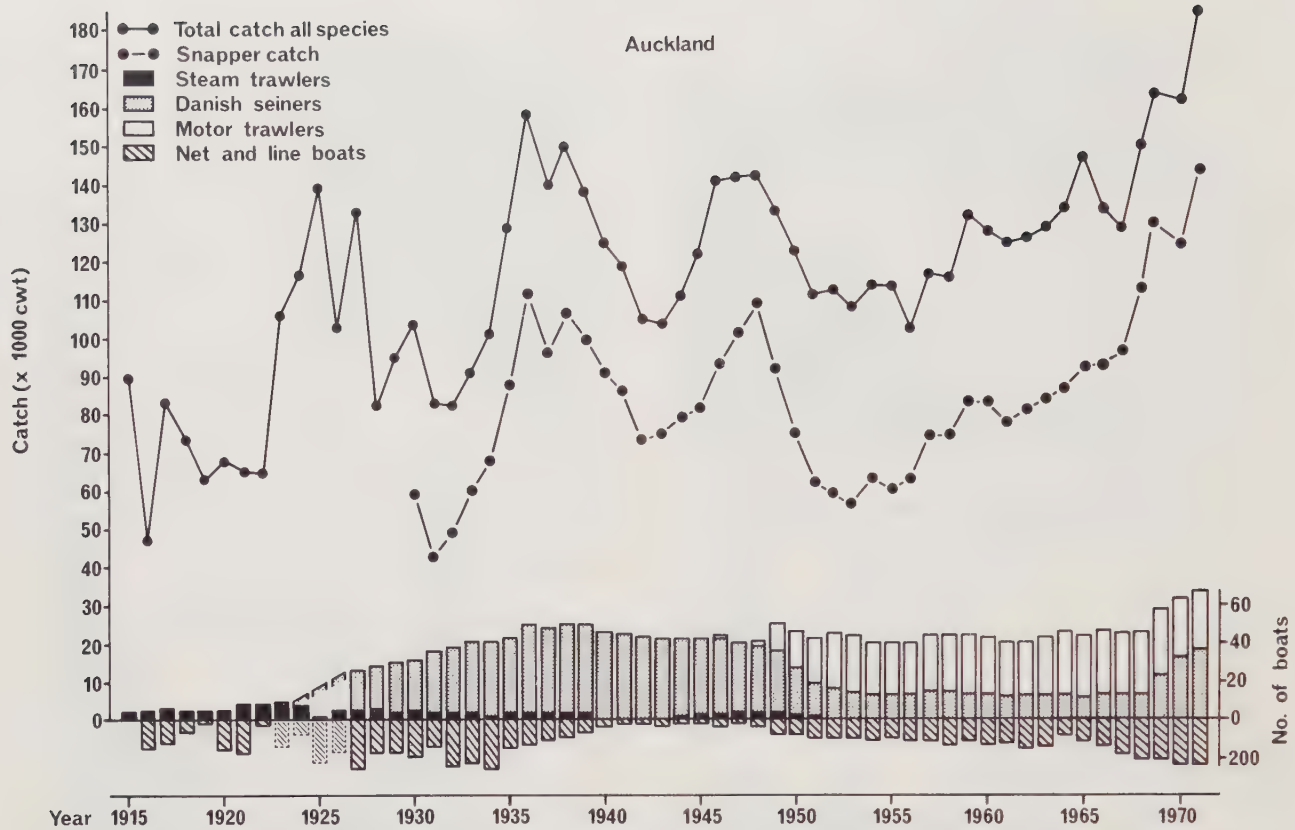



Fig. 5: Historical trends in the landings of fish at Auckland, 1915-71. Wetfish (all species) and snapper are shown separately. Changes in the size and composition of the commercial fishing fleet are also shown; figures for 1923-26 are estimated.

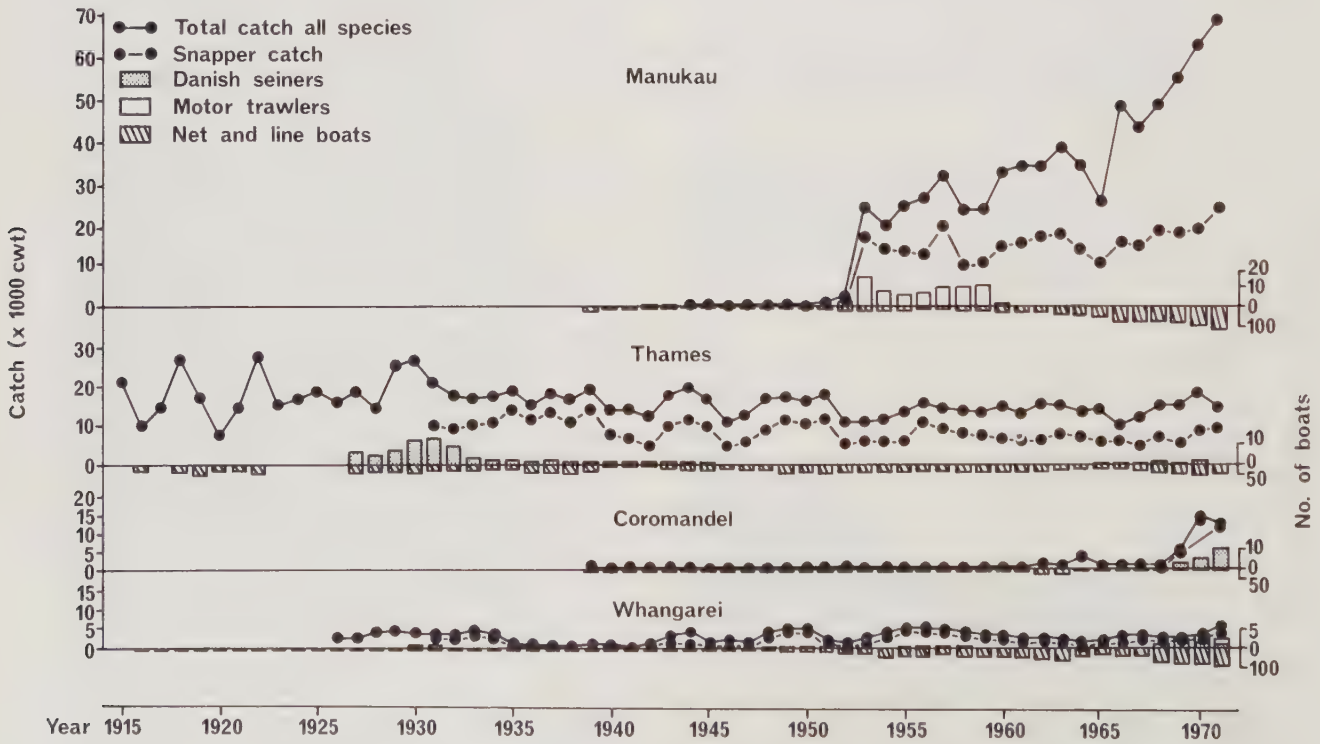



Fig. 6: Historical trends in the landings of fish at Manukau and small Hauraki Gulf ports, 1915-71. Wetfish (all species) and snapper are shown separately. Changes in the size and composition of the commercial fishing fleet at each port are also shown.

# SOURCES OF INFORMATION

There have always been conflicts of interest and opinion within the Auckland snapper fishery: between amateur and commercial fishermen and among the four principal groups of commercial fishermen—those working on trawlers, on Danish seiners, and on the smaller long-line and/or set net vessels. Complex regulations governing mesh size, fishing areas, and methods of fishing have been developed over a long period. These regulations generally have been intended to prevent overexploitation of the fish stocks, but usually they had the important secondary objective of making appropriate adjustments between conflicting claims of different groups of fishermen. However, attempts to allocate different grounds to each fishing method have often had the effect of discouraging the full development of the more efficient methods.

Several major changes within the industry have occurred this century, some of them resulting directly or indirectly from regulations. Consequently the development of the fishery and the background to the regulations have been well documented, particularly in *Marine Department Annual Reports* (New Zealand Marine Department 1906-72), reports of commissions of inquiry, newspaper reports, and unpublished documents on files formerly held by the Marine Department. Hefford (1929), Anon. (1938), and Anon. (1956) give summaries of some historical aspects of the industry. Because these reports are not widely available, their main findings are included in appropriate sections of this bulletin to give a longer historical perspective. Cassie (1955), Longhurst (1958), and McKenzie (1960) comment on some aspects of the snapper's biology relevant to its fishery.

## FISHERIES STATISTICS

Statistical information related to the snapper fishery came from two sources:

1. **Fishing Unit Records.** Licensing and survey documents give (where appropriate): overall length of vessel, gross tonnage, year of construction, horsepower of engine, number of operators, and type of fishing gear used.

2. **Fishing Effort and Landed Catch Records.** Monthly returns from all fishing permit holders include: dates and number of landings (referred to subsequently in this bulletin as "trips"), port of landing, number of days at sea for each trip, fishing area(s) worked, and species composition of each landing by weight and value.

Some items of this information are available from the early 1900s, and the system of monthly returns has been in operation since 1936. The data are compiled for each year and published in the form of annual (and some monthly) summaries and tables (New Zealand Marine Department (*Annual Report*) 1906-72, New Zealand Marine Department (*Report on Fisheries*) 1928-72). The *Report on Fisheries,* which is extracted from the *Annual Report* and is issued separately, is usually, but not always, an exact reprint of the *Annual Report,* but in some years it incorporates corrections and additional material. Where discrepancies occurred the *Report on Fisheries* version was used. The main subdivision of these data on the fishing fleet and the commercial catch is by port of landing. In addition, data from 1960 onwards are stored and available for alternative computer analyses, for example, by fishing area.

## THE HAURAKI GULF

For statistical purposes New Zealand's coastal waters were divided into 24 fishing areas by the Marine Department. Area 3 in this system almost corresponds with the interpretation of the Hauraki Gulf adopted in this bulletin and in recent publications on snapper (Paul 1974, 1976, Vooren and Coombs 1977) and is defined as that area of waters between Bream Head in the north-west and Cuvier and the Mercury Islands in the south-east (Fig. 7). The Hauraki Gulf may be divided into the Gulf proper or inner Gulf, south of a line from Cape Rodney to Cape Colville, and the outer Gulf, seawards of this line. If its seaward limit is taken as the 100-m contour (the continental shelf edge is at 150 m), the Hauraki Gulf covers about 9000 $km^2$ (about 2700 square nautical miles), of which about one-third comprises shallow harbours and bays less than 25 m deep. For various reasons not all of this area is productive fishing ground.

The main port in this fishing area is Auckland, with Thames and Coromandel as secondary ports. Boats from Whangarei fish both east Northland and the Hauraki Gulf and are included in some analyses of Gulf fishing activity. Auckland-based trawlers also land catches into Manukau Harbour on the west coast and from necessity are included in some analyses. Boats from east Northland and Bay of Plenty ports occasionally fish in the Gulf, but are not considered further in this bulletin.

# FISHING GROUNDS WORKED

Although the smaller Auckland-based fishing vessels are restricted to the Hauraki Gulf (Fig. 7), the larger trawlers can work the grounds extending from New Plymouth on the west coast, around North Cape, to Mahia Peninsula on the east coast (Fig. 8). Snapper grounds are usually, but not always, separate from tarakihi grounds trawled by the same vessels; tarakihi grounds are deeper and are often worked at night.

The line and set net vessels which made up the commercial fleet at the turn of the century worked mainly in the sheltered south-western Gulf (around Kawau, Tiritiri Matangi, and Waiheke Islands) and in the Firth of Thames. The first steam trawlers (1899-1904 and 1915 onwards) were soon restricted by regulation to working in the outer Gulf, and the larger vessels began making longer voyages to the Bay of

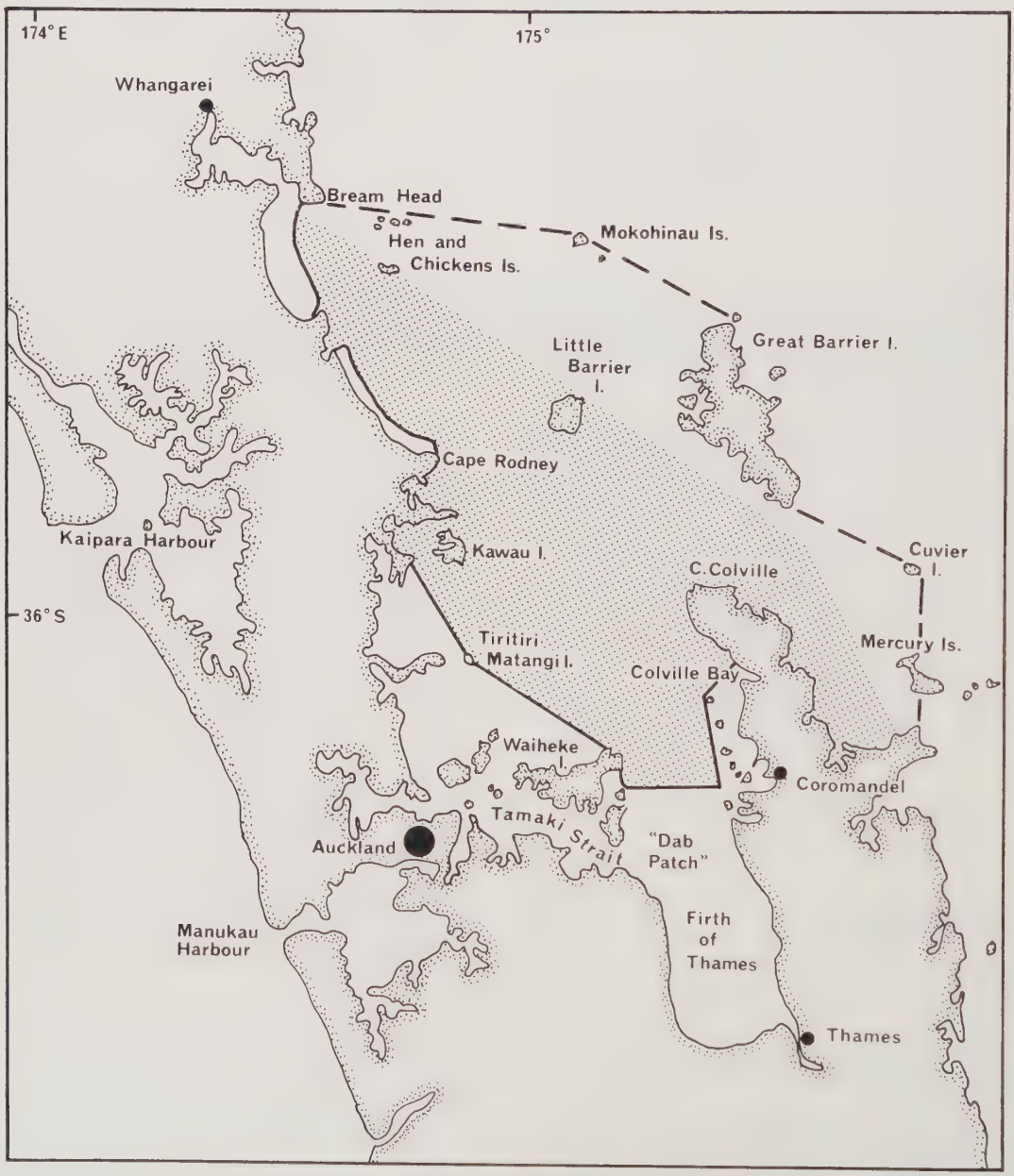



Fig. 7: The Auckland region. The dashed line indicates the outer boundary of fishing area 3, which for the purposes of this bulletin is regarded as the Hauraki Gulf. The fishing ground worked by Danish seiners is shown by the stippled area; the outer limits of this ground are indefinite. For details of inner Gulf areas closed seasonally or permanently to different sizes of vessel see Fig. 24.

Plenty, East Cape, and west Auckland. By about 1930 their effort was divided fairly evenly between the outer Gulf and the Bay of Plenty-East Cape region, with a few trips to the west coast. Danish seiners, which started working in the early twenties, were soon restricted to the central and outer Gulf, and during the thirties the bigger boats began working further afield, mainly to in-shore Bay of Plenty grounds.

The outer Gulf and Bay of Plenty remained the main trawling and seining grounds during the thirties and forties, with the larger vessels, mainly the steam trawlers, also working the East Cape area for tarakihi. Some grounds in east Northland and along Ninety Mile Beach were also worked, but grounds further south on the west coast were too far from Auckland, the main eastern port, and were visited only occasionally. The conversion of most seiners to trawlers about 1950 put more effort on the outer Gulf and Bay of Plenty grounds. A little later, 1952, Auckland-based trawlers were permitted to land into Manukau, which allowed the exploitation of the west Auckland grounds south of Ninety Mile Beach. Vessels occasionally fished as far south as New Plymouth.

Another major trend in the early fifties was increased seasonal fishing by larger Auckland trawlers on the East Cape tarakihi grounds, between Cape Runaway and Mahia Peninsula; this gradually declined in the late fifties and early sixties. A survey of 180 trawler trips in February-June 1964 showed that 60% were confined to the Hauraki Gulf, 25% to the Bay of Plenty, including only a few to the East Cape area, and 15% to east Northland and Ninety Mile Beach.

Thus much of the northern New Zealand coastline has been worked by Auckland-based trawlers and seiners for many years. The progressive closure of in-shore grounds by regulation has induced exploratory fishing further afield, and the discovery of any major new trawling or seining grounds is now unlikely. However, considerable in-shore areas have seldom or never been worked because of unsuitable bottom topography. Most grounds have patches of rough, untrawlable bottom, and there are some extensive areas of rough bottom north-east and south-east of Great Barrier Island and between Bream Head and North Cape along the east Northland coast.

Fishing intensity for snapper on the different grounds varies with season, time of day, and weather. At certain times of most years there is increased trawling for tarakihi in the outer Gulf (particularly from the Barrier Islands towards the Hen and Chickens and Mokohinau Islands) and on deeper Bay of Plenty to East Cape grounds, and consequently

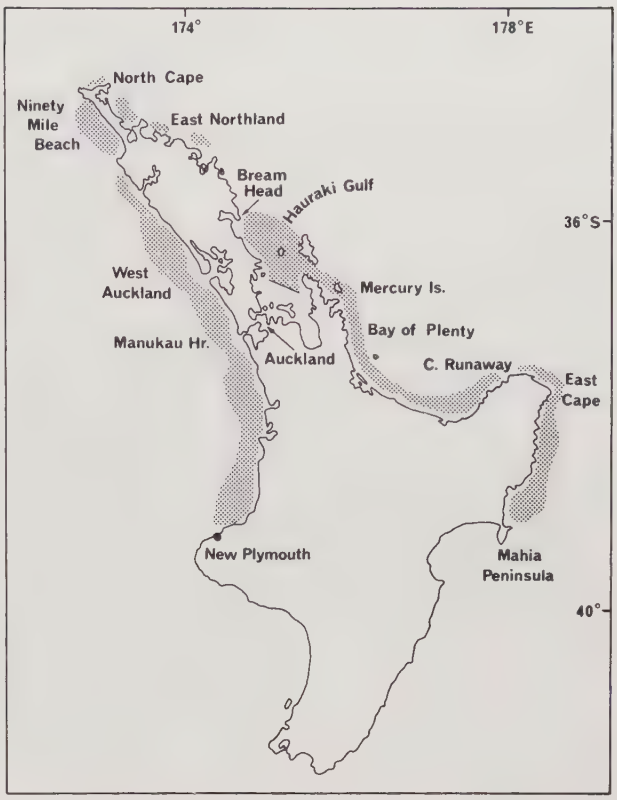



Fig. 8: Fishing grounds in northern New Zealand which are worked by Auckland-based trawlers. For details of the Hauraki Gulf inner trawling line see Fig. 24.

there is less emphasis on snapper. In late winter and early spring, as snapper concentrate in the central Gulf before spawning, trawlers (and also seiners) increase their fishing effort there.

Most daylight trawling is done on the in-shore grounds, where the water is turbid, and most night trawling on the off-shore grounds, where the water is clear. The in-shore grounds yield snapper, trevally, and red gurnard, and the off-shore grounds tarakihi and larger snapper. Large snapper are also caught in in-shore grounds near harbour entrances, particularly when conditions are turbid after rough weather.

Danish seining is mainly confined to the sheltered waters of the Gulf, especially near Kawau, Tiritiri Matangi, and Waiheke Islands, Colville Bay, and at the northern end of the Firth of Thames.

Long-line fishing for snapper is generally undertaken by small boats in the in-shore waters of the Gulf closed to seining and by some larger launches along the western coast of Great Barrier Island.

Set net fishing is done in shallow water around the margin of the Firth of Thames and in harbours and sheltered bays around the whole of the Hauraki Gulf.

Some of the line-caught and net-caught snapper landed into Auckland come from Manukau and Kaipara Harbours on the west coast.

# GENERAL HISTORICAL TRENDS

As a general introduction to events in the early twentieth century the beginnings of the commercial snapper fishery are summarised below, though the period is strictly outside the range of this bulletin.

Archaeological evidence shows that the Auckland region has been inhabited by Maoris for at least 500 years and also that the snapper was an important item of food. Snapper bones are abundant at prehistoric camp sites and settlements all around the shores of the Gulf. There is ethnographic evidence that fish was a trade item of the early Maoris, coastal tribes catching, processing, and exchanging dried fish for other food, clothing, or quarried stone, which were more easily obtained by tribes living further inland. When Europeans first arrived and settled, the Maoris exchanged fish with them for items of food, clothing, and warfare. They therefore practised more than just subsistence fishing and so represent the first commercial fishermen.

Commercial fishing developed slowly in the late nineteenth century, the principal fishing methods for snapper being hand-lining, set netting, and beach seining usually from small sailing or rowing boats (Fig. 9) in the sheltered south-western Gulf close to Auckland. These methods were also used by amateur fishermen, and there was probably little difference between the two groups then.

Auckland fisheries inspectors reported in the early 1900s (Hefford 1929) that supplies of snapper were generally about equal to the demand. In fact from about 1906 to 1910 seasonal limits had to be imposed on catches to avoid oversupplying the market. In 1908 there was also concern at an apparent depletion of snapper on the local (Tamaki Strait) grounds. The long-line, introduced in 1912, quickly replaced the hand-line as a more efficient and successful method of fishing. Complaints of depletion died away for a short time.

[By courtesy of Auckland Institute and Museum

Fig. 9: Mullet boats in Auckland Harbour about the turn of the century. These small, fast yachts were built specifically for mullet fishing in northern New Zealand's tidal harbours and estuaries, but were also used for in-shore line and net fishing for snapper.

[C. F. Bell photograph by courtesy of Sanford Ltd.

Fig. 10: The 33-m steam trawler *Baroona*, one of the steam trawlers which began fishing out of Auckland in 1915, was apparently converted from some other type of vessel. In the 1970s, altered again, she was working as a passenger ferry between Auckland and Waiheke Island.

At the turn of the century, and again in 1916, came early indications of the controversy between line or net fishing and "power" fishing by trawlers or seiners, which was to have such an influence on the fishery throughout its development.

## THE EARLY STEAM TRAWLERS

In 1899 the small steam trawler *Minnie Casey* began fishing with a beam trawl in the Hauraki Gulf. There was an immediate outcry from the amateur and commercial line and net fishermen, and a 1000-signature petition alleging rapid diminution of snapper caused by destructive trawling was sent to Parliament in 1900. As a result a regulation introduced in May 1902 prohibited trawling in most of the Hauraki Gulf. In 1904 *Minnie Casey* ceased trawling altogether.

In a new attempt to encourage trawling and strengthen the local fishing industry the trawling limit line was moved closer to shore in the Kawau Island and Colville Bay areas in 1907, but there was no immediate interest. It was not until 1915 that four trawlers began working; there were five in 1916 and six in 1917. Some were large vessels about 35 m long overall (Fig. 10). Most of these were operated by Sanford Ltd, formed in 1881 and one of the major fishing companies in Auckland since (Anon. 1974). The Auckland City Corporation also ran a fish market and at least two trawlers, but the venture was not a financial success and ceased in 1923.

The introduction of trawlers in 1915 made commercial line and net fishing less profitable. Greater quantities of snapper were landed and sold for a cheaper price, and line and net fishermen are stated to have been put out of work (Hefford 1929). The recorded numbers of registered line and net boats did decline at this time, but this is difficult to interpret for two related reasons: fishermen were leaving New Zealand to go to the First World War, and the numbers of full-time and part-time fishermen were not recorded separately. However, Hefford (1929) records that after a couple of years, when the local market had adjusted to the greatly increased landings of snapper and prices had stabilised, more small-boat men were again employed in the industry.

By about 1920 there were renewed complaints of a depletion of snapper in the Hauraki Gulf. The smaller trawlers were operating successfully in the central and outer Gulf, but the medium-sized trawlers, which were more costly to run, were forced to travel further afield, to the Bay of Plenty and East Cape grounds, to obtain full loads. This situation had two consequences:

1. The replacement of medium-sized steam trawlers with larger, 30- to 35-m vessels capable of travelling to and working the more distant grounds in most

[By courtesy of Sanford Ltd

Fig. 11: *Thomas Currell*, a steam trawler which began fishing in the early 1920s. She was taken by the Navy for minesweeping duties during the Second World War, then worked as a trawler for a few years after the war until replaced by smaller, more economical motor trawlers.

weather (Fig. 11). An associated development was the adoption of the Vigneron-Dahl modifications to the standard otter trawl gear.

2. Danish seining was introduced and rapidly became an important fishing method, mainly within the Hauraki Gulf but also on more distant grounds.

Steam trawling continued until 1939. Only a few vessels worked, but they were apparently successful and profitable during the twenties, as judged by the absence of recorded complaints or controversy. However, these trawlers struck problems during the thirties, as will be described below.

## THE DEVELOPMENT OF DANISH SEINING

Commercial line and net fishing for snapper continued throughout the fishery's development, despite the periodic introduction of more efficient methods. Many kinds of fishing boat were used, including dinghies, sail-boats, and large launches. Some of the larger launches, however, were adapted to the Danish seining method during the twenties (Fig. 12).

Danish seining was introduced in the Hauraki Gulf in late 1923. It was originally intended to be an alternative fishing method for the smaller, uneconomic steam trawlers, but its immediate success quickly led to its use on a large number of "oil-engined" launches as well. In January 1924 the Firth of Thames was closed to Danish seining, but this did not deter adoption of this fishing method. By April 1924 two steam trawlers and three launches were working as seiners, and during spring very large catches of snapper were made on previously

[By courtesy of Sanford Ltd.

Fig. 12: Line boats, set net boats, and some early Danish seiners moored at the old Nelson Street Wharf, Auckland, in the early 1920s. Similar, possibly even some of the same, vessels still worked with lines and nets in the early 1970s.

unprofitable (presumably line-fished) grounds. In fact more snapper were caught than the Auckland markets could handle (Hefford 1929).

By the end of 1924, 22 seiners were working, and the number increased to over 30 by the end of the decade. Most of these were 10- to 12-m launches, powered by petrol, kerosene, semi-diesel, or true diesel engines.

There was considerable opposition to seining in the Gulf from amateur fishermen and from those commercial fishermen who had decided to continue long-lining and set netting. Seining was blamed for continued depletion of snapper stocks and was considered too intensive a fishing method for harbours and narrow channels (Hefford 1927). In 1926 the in-shore grounds at Tamaki Strait and the reported Kawau-Tiritiri Matangi Islands spawning grounds were closed from November to January. Not all the seiners made their expected large catches, however, and the closure of in-shore grounds handicapped the smaller boats. In the late twenties several returned to long-lining, particularly during spring and summer, when good catches could be made on the spawning or "school fish" grounds then closed to seining.

In 1928 there were renewed claims from Thames fishermen that seining in the Gulf was depleting the stocks of snapper and flounder in the Firth, and in 1929 most of the inner and central Hauraki Gulf was closed to Danish seiners over 50 ft (15 m) long. This came at a time when the seiner fleet was still increasing both in number and size of vessels and extending its operations to the outer Gulf, Bay of Plenty, and east Northland grounds. Many 10- to 15-m diesel-powered vessels were built to replace the older and uneconomic converted launches. The available evidence does not indicate which event came first: the closure of the Gulf or the increased fishing power of the seiners. Cause and effect must therefore remain speculative.

## THE ECONOMIC DEPRESSION: EARLY AND MID THIRTIES

In 1930 the Marine Department predicted a general fall in fish landings and prices in 1931 as a result of the depressed state of the New Zealand economy (New Zealand Marine Department (*Report on Fisheries*) 1930). In the Hauraki Gulf snapper fishery the effect was masked to some extent by the increase in Danish seiner operations and by the development of an export market to Australia (see page 22). Cassie (1965) has shown that total fisheries production in New Zealand followed the decline of the national economy, with a time lag of about 1 year.

The depressed economy lowered the local demand for fish; prices fell and consequently landings. Moreover, as unemployment increased many people took up fishing either as part-time commercial

fishermen (the number of registered net and line fishermen in the Hauraki Gulf area increased in 1932-34) or in a casual way to obtain food and occasionally money from sales. This affected the earnings and profitability of the established full-time line and net fishermen and also Danish seiners, but the section of the fishing industry most seriously affected was the trawler fleet because of the high operating costs of large steam trawlers. In 1930 four trawlers were working full time and one part time, but only one was still operating by the end of 1931.

Total fish landings into Auckland declined in 1931 and 1932 (Figs. 5 and 13). Tarakihi declined more than snapper, because more of the former was caught by steam trawlers. The Danish seiners were not working to full capacity because of competition from the increased sales of cheap fish direct from the smaller line and net launches. Individual owners could not make their boats pay, and many sold them to companies and remained as skippers (Jennings 1969). Many small wholesale and boat owner companies were formed and re-formed between 1930 and 1935 (Anon. 1938, pages 43-44), which is an indication of the unsettled nature of the Auckland fishing industry at the time. The combination of privately owned and company owned boats reflected a lack of integration within the industry which strongly influenced the course of events in the mid thirties.

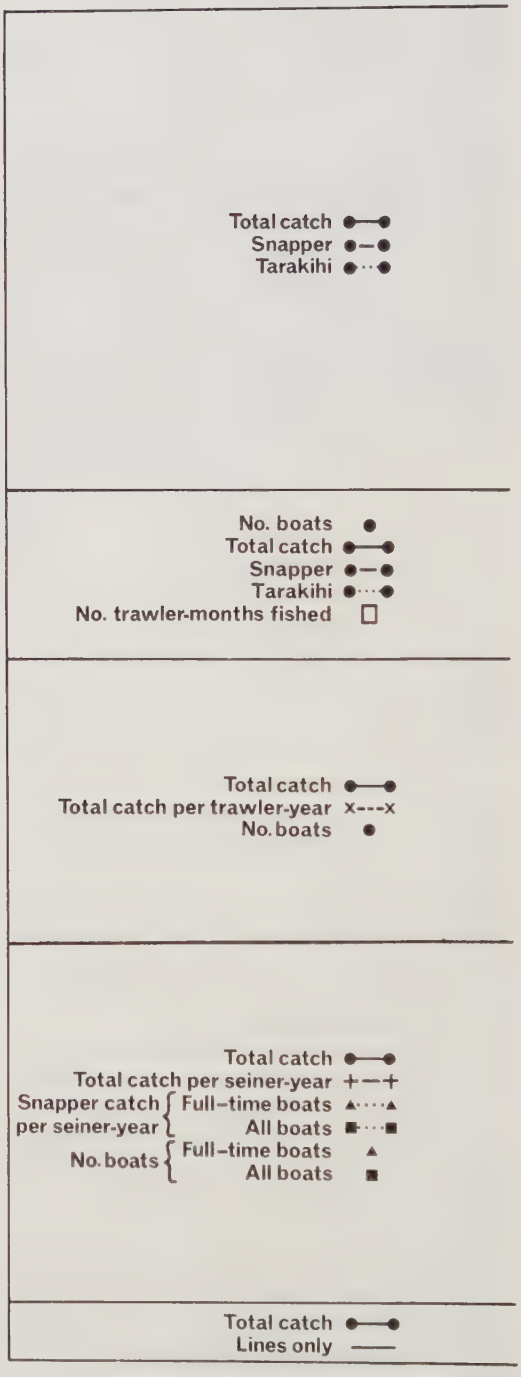
In 1933 the demand for fish within New Zealand was poor, but from 1934 there was a slow recovery. This recovery, however, was complicated by the events which led up to and followed a crisis in the fishing industry in the mid thirties caused by unprofitable exporting to Australia.

Although fish is known to have been exported previously from New Zealand, the first record of snapper exports was in 1929 and that of tarakihi was in 1937.

The decrease in exports of snapper to Australia in 1931 was undoubtedly due to the depressed economy in both countries. However, exports rose steeply in the next 5 years (Fig. 14) because exporters could buy cheaply and—initially at least—sell at a reasonable profit in the Australian markets. Quality also improved and an increasing proportion of snapper was sent as processed fillets rather than whole fish (which partly explains the rise in price per pound in 1933-37 as shown in Fig. 15). Export opportunities were further enhanced by a decline in the supply of fish from the south-east Australian trawling grounds to the Sydney markets (Houston 1955). The low demand for snapper in New Zealand at the time meant that there was a large surplus available for export.

The following review of events in the mid thirties is based on statements by the Marine Department (New Zealand Marine Department (*Report on Fisheries*) 1932-38) and by the 1937-38 Sea Fisheries Investigation Committee (Anon. 1938).

The New Zealand fishing and fish-exporting industry was fragmented and disorganised in the early thirties, and the rapid increase in snapper exports was accompanied by price-cutting tactics by many exporters when the Australian market began showing

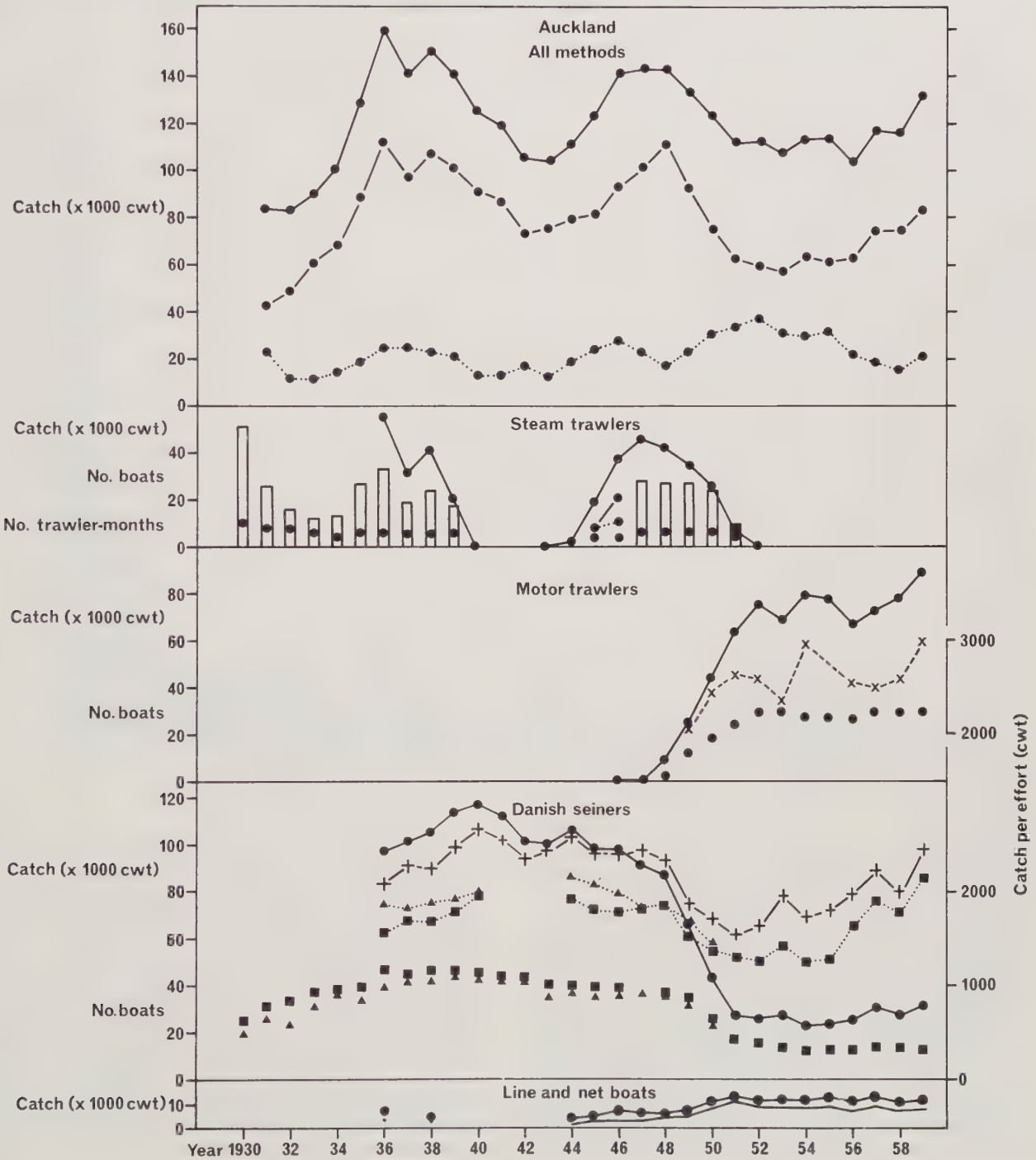



Legend for Fig. 13

signs of oversupply. Australian buyers were able to bargain with individual exporters and lower the price of the increasing volumes of snapper the latter were committed to sell.

The Auckland retail fish trade suffered during the early thirties because the initial rush of fishermen and wholesalers to take advantage of the export markets resulted in overcapitalising the industry. Local wholesale fish prices were necessarily raised to offset the minimal profits and frequent losses made in the export trade. At the same time a multiplicity of fish shops in Auckland, including some owned by the

Fig. 13: Auckland wetfish landings, 1930-59, by fishing methods, and catch per vessel of trawlers and Danish seiners. The legend to the symbols is on the opposite page.



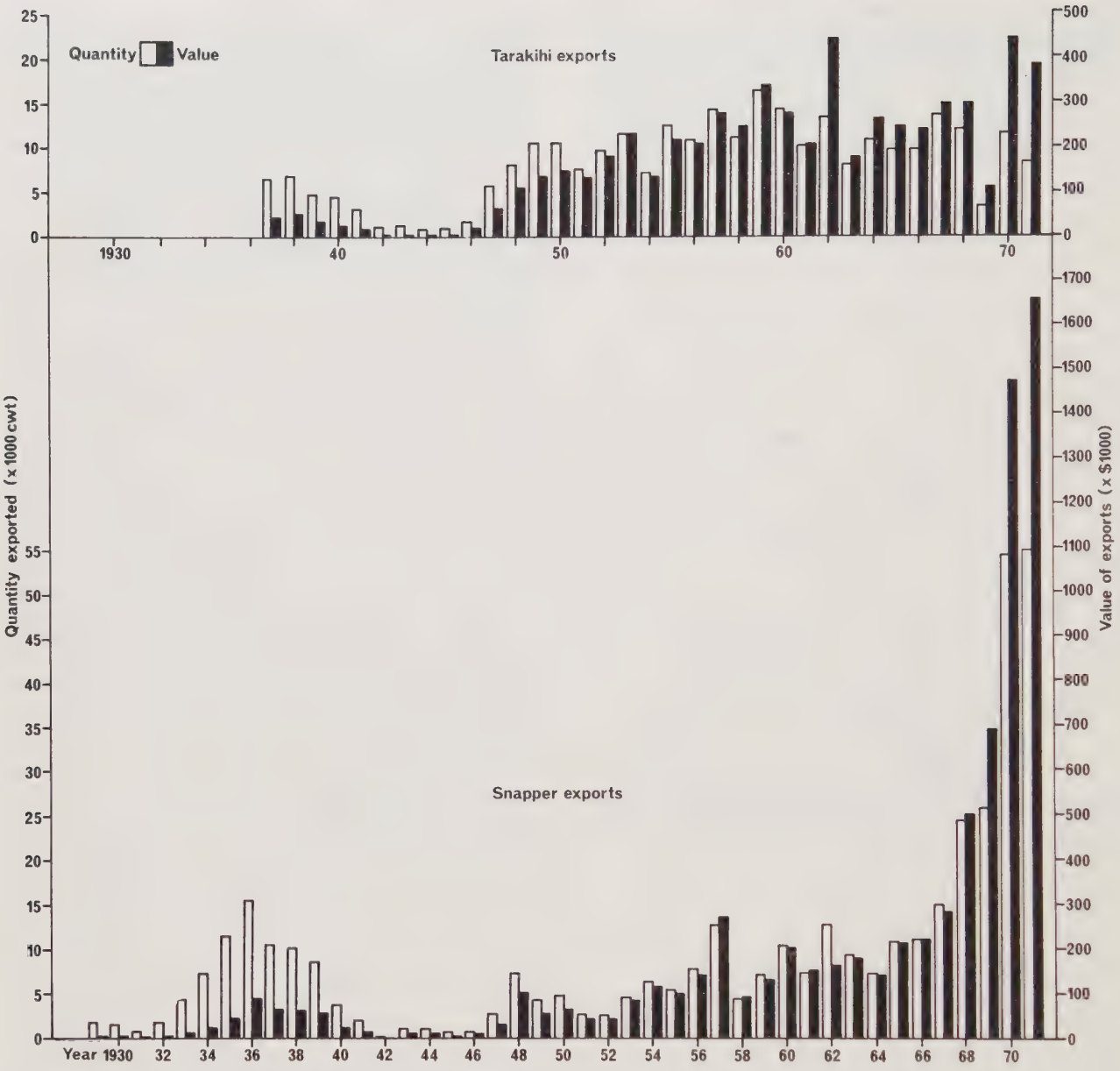

Quantity
Value
Tarakihi exports
Snapper exports
Quantity exported (x 1000 cwt)
Value of exports (x $1000)
Year 1930 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70

Fig. 14: Exports of snapper and tarakihi from New Zealand, by weight and value, 1929-71.

wholesalers, led to periodic price cutting and uneconomic retailing operations. Thus, although some of the local industry's difficulties were of its own making, it was able to claim that the distortions in trading patterns resulted from poorly controlled exporting.

Despite these trading difficulties, from 1932 Auckland snapper catches increased. New and efficient Danish seiners entered the fleet, though because of the marketing limitations not all could work full time. Among the wholesalers competition for a depressed local trade and an increasingly difficult export trade became so intense that prices were forced down and held at uneconomic levels, and the financial returns to fishermen became so poor that they went on strike in October 1936. The resulting negotiations led to a substantial increase in the price paid; for some fishermen it doubled.

Australia then became an uneconomic market for individual exporters, and an agreement was made whereby all exported snapper was shipped through only one company. The export prices had to be raised to allow for the higher price to the fishermen, and, with higher prices encouraging more fishing, more snapper and tarakihi than the wholesalers could handle was landed, and stockpiles of unsold fish

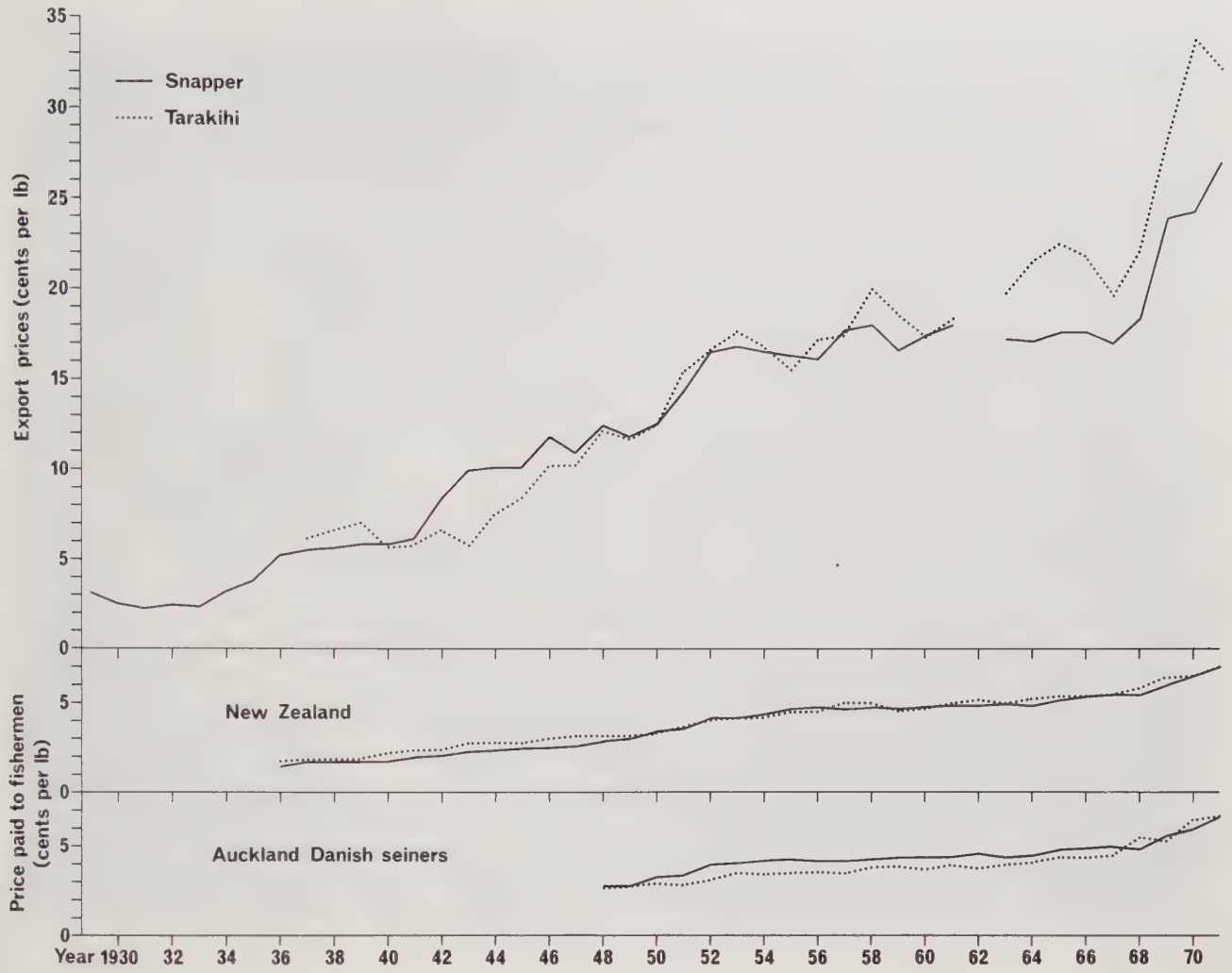



Fig. 15: Trends in the market value of snapper and tarakihi. Top: New Zealand export prices, 1929-71. Centre: Average New Zealand price, all fishing methods, 1936-71. Bottom: Auckland price, Danish seiners, 1948-71.

developed. Tarakihi, which sold well on the Australian market because it was preferred to snapper, was exported from an increasing number of New Zealand fishing ports in competition with Auckland. During the late thirties Australia became a less profitable market, as shown by the rather slow rise in the export price for snapper and apparently unchanged price for tarakihi (Fig. 15).

The 1937-38 Sea Fisheries Investigation Committee (Anon. 1938) considered the evidence relating to this very unsettled decade and concluded that "the phenomenal rise of the export trade in recent years is the root of most of the troubles in the New Zealand fishing industry today." A consequent recommendation was that there should be a gradual restriction of fish exports until they were phased out altogether, coupled with an expansion of the local market. Exports did in fact continue falling during the late thirties, despite an increase in snapper landings, and did not rise again until after the Second World War. The decline was undoubtedly due both to low profitability and to lack of Government encouragement to export (there is no record of the direct discouragement recommended by the committee).

## THE PRE-WAR AND WAR YEARS: 1937-45

By 1938 the fleet of Danish seiners had reached a maximum of 49 vessels. Figure 16 illustrates the type of seine boat built during the thirties. This increase in boat numbers caused the rapid rise in snapper landings into Auckland from 1932 to 1936 during recovery from the depression.

In 1937 the total Auckland snapper landings fell slightly. This fall may have been partly due to export difficulties, as discussed above, but it was obviously

Fig. 16: *Podgora,* built in 1934 and still fishing in the early 1970s, is typical of the Danish seiners which entered the fleet during the 1930s.

also due to decreased landings from steam trawlers, which were becoming less economic to operate and often laid up because of manning difficulties. Steam trawler landings improved slightly in 1938 and then dropped sharply again in 1939, when these vessels were transferred to the New Zealand naval authorities for war duties.

Total Auckland snapper landings fell to a low point in 1942 (Fig. 13). This decline was caused partly by the loss of steam trawlers and partly by the drop in total catch (of all species, though mainly of snapper) and catch per boat of Danish seiners from their peak in 1940. However, this latter drop was very small and despite wartime difficulties (poor supplies and prices), Danish seine catches remained fairly stable until shortly after the war at about 100000 cwt in total catch and 2500 cwt in annual catch per boat. The fleet, after reaching a maximum of 49 registered vessels in the late thirties, slowly diminished.

There was a greater decline in the number of line and net boats registered in the Hauraki Gulf area between 1934 and 1940 (Figs. 5 and 6). This may have been partly due to the general economic recovery from the depression, with some of the "temporary fishermen" returning to other occupations, and partly to some of the fishermen—probably the better ones—taking up Danish seining. The number of registered boats remained at fewer than 100 until after the war.

## THE POST-WAR YEARS: STEAM AND MOTOR TRAWLING

Total Auckland fish landings (principally snapper) rose from their 1942 low figure to a peak in 1946-48, then fell steadily to a new low point in 1953-56 before rising again to their final high level (Fig. 5). This section examines some of the reasons for these fluctuations.

The main factors were the return of the steam trawlers to fishing and the conversion of many Danish seiners to motor trawlers.

One steam trawler began fishing in late 1944, two were operating in 1945-46, and three were registered

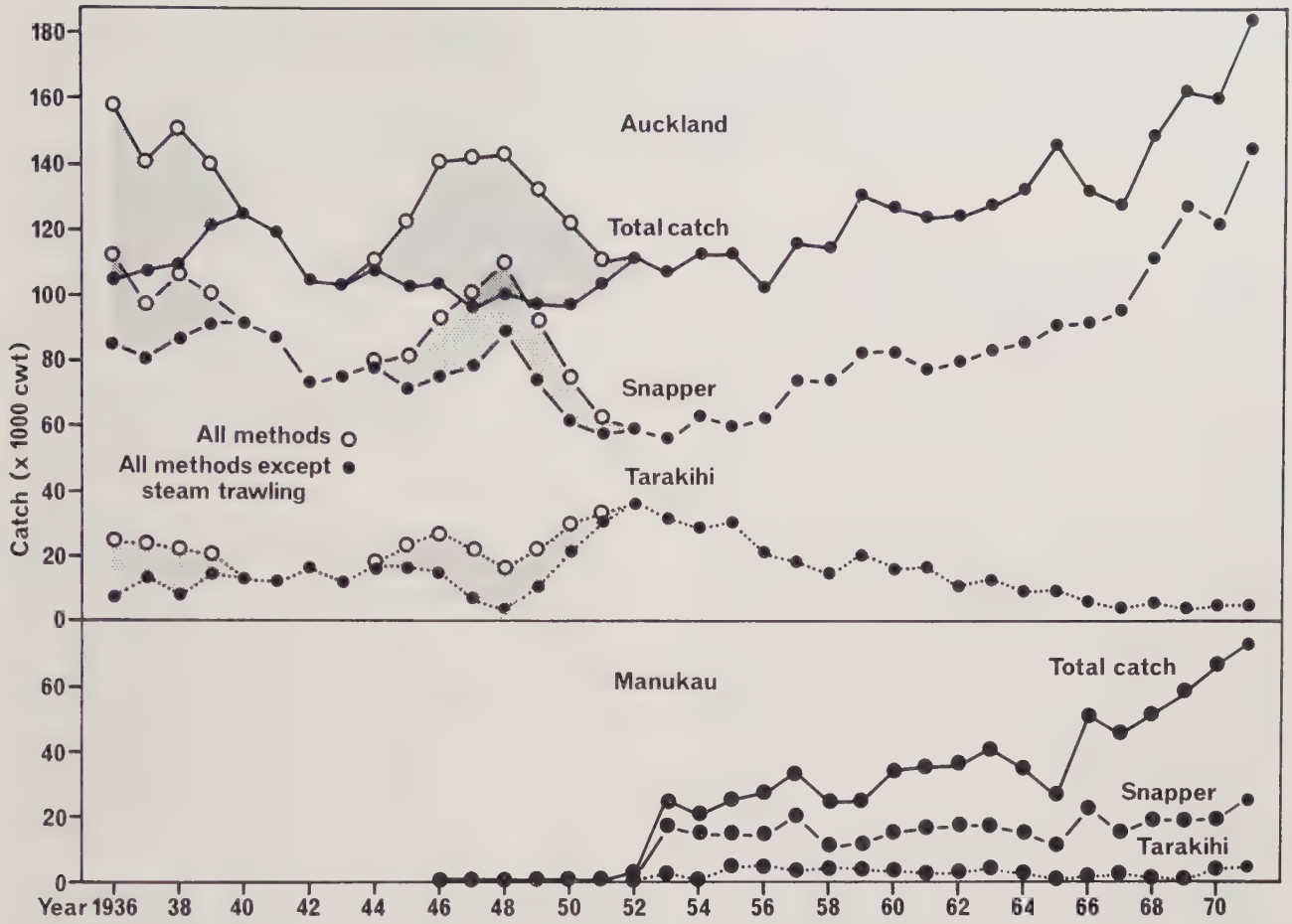



Fig. 17: Total wetfish landings at Auckland and at Manukau, 1936-71, and landings of snapper and tarakihi. The stippled areas indicate the landings by steam trawlers.

from 1947 to 1950. Increased running and maintenance costs and manning problems reduced their operations in 1951, and in 1952 they were laid up. The catch per effort also decreased: the annual number of trawler-months spent fishing was fairly constant from 1947 to 1950 while the catch was declining (Fig. 13).

Steam trawler landings accounted for all of the increase in landings of all species from 1945 to 1951 (Fig. 17). Through the gradual reduction in size of the fishing fleet the landings by other methods, chiefly Danish seining, continued to fall slowly until 1950. (Danish seine vessel numbers are listed in Fig. 18.) That is, catch per effort by these methods, for all species, remained fairly stable until 1948.

The two major species, snapper and tarakihi, however, showed distinctly different trends: snapper landings reached a peak in 1948, whereas quantities of tarakihi were low. The low figure for tarakihi at Auckland was not paralleled by landings at other important tarakihi ports. There are no data on fishing fleet composition, prices, or exports which would explain this. In fact New Zealand exports of tarakihi increased more rapidly than those of snapper, though much of this gain presumably came from southern ports. The larger landings of snapper might indicate a return to more concentrated fishing in the Hauraki Gulf, where snapper are generally more abundant than tarakihi, after the removal of several minefields after the war. Or it might indicate a real change in the relative abundance of the two species on the fishing grounds (mainly the Gulf) worked by Auckland vessels.

Tarakihi landings rose from 1948 until 1952, when they reached a record quantity for Auckland. Snapper landings fell until 1953, dropping to their lowest since 1932. This decline was a major event in the fishery (see Fig. 4) and stimulated increased research on Hauraki Gulf and west coast snapper (Cassie 1955, Reid 1969). It warrants careful consideration here, even though—after the passage of time—some details must remain vague and some conclusions speculative.

The increased tarakihi landings can be partly explained by changes in the composition of the Auckland fishing vessel fleet. Between 1948 and 1952

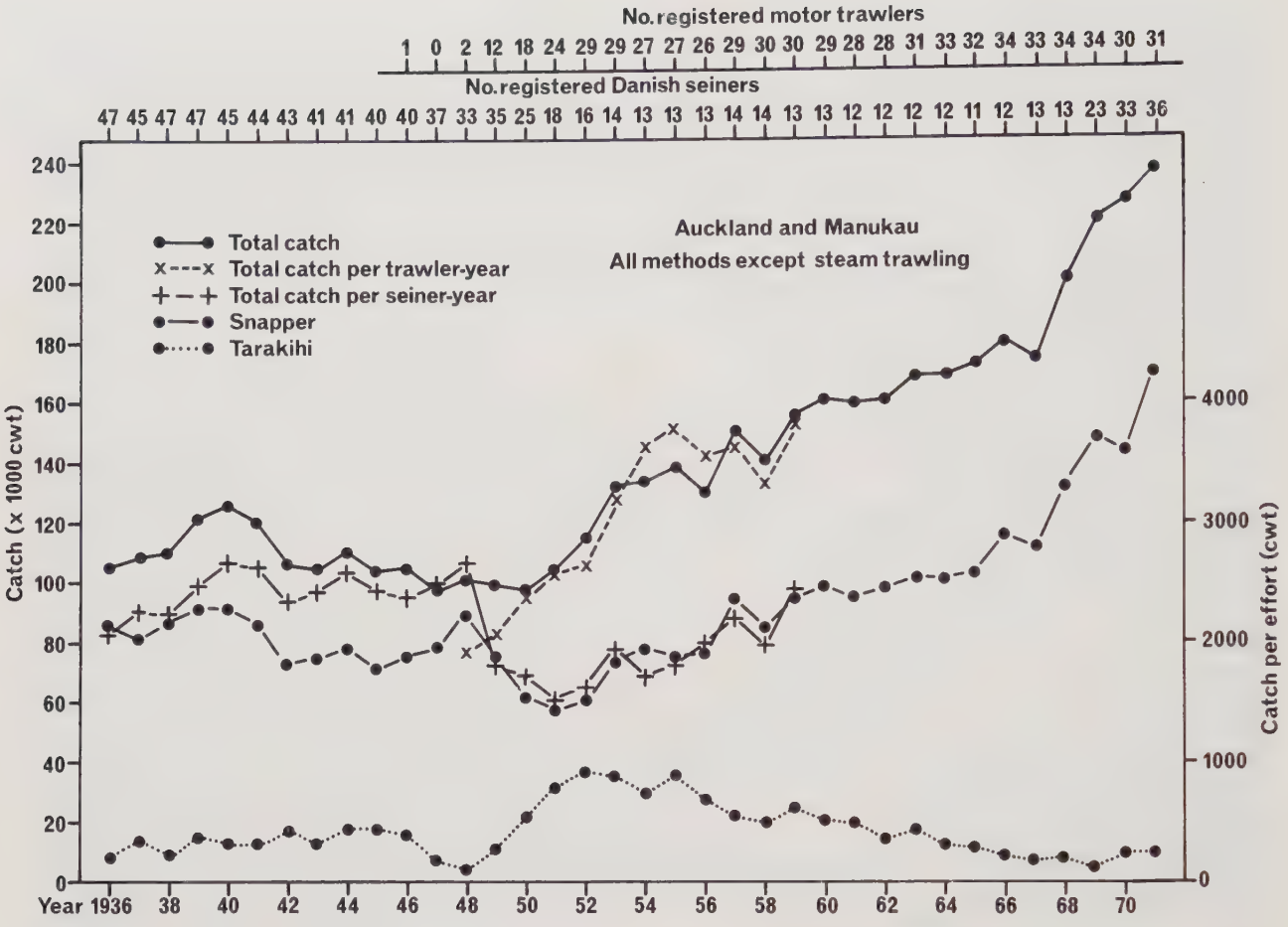

No. registered motor trawlers
1 0 2 12 18 24 29 29 27 27 26 29 30 30 29 28 28 31 33 32 34 33 34 34 30 31
No. registered Danish seiners
47 45 47 47 45 44 43 41 41 40 40 37 33 35 25 18 16 14 13 13 13 14 14 13 13 12 12 12 12 11 12 13 13 23 33 36
Total catch
Total catch per trawler-year
Total catch per seiner-year
Snapper
Tarakihi
Auckland and Manukau
All methods except steam trawling
Catch (x 1000 cwt)
Catch per effort (cwt)
Year 1936 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70

Fig. 18: Total wetfish landings at Auckland and Manukau combined, 1936-71, and landings of snapper and tarakihi. Catch per vessel for trawlers and Danish seiners is also shown.

about half of the Danish seiners converted to motor trawling, and a move towards acquiring slightly larger vessels (Fig. 19) had two immediate effects. The trawlers were required by regulations (see page 34) to work further off shore and therefore caught less snapper and more tarakihi. And trawl gear enabled them to work in rougher conditions and deeper water than they had as seiners and this similarly altered their catch composition.

There is no recorded information on the reason for this change from Danish seining to trawling, but it was presumably due to economic factors within the fishery. It did not result from the appearance of a new and improved fishing method (as it had with Danish seining in the early twenties), because motor trawling had been known in New Zealand since at least 1916. The three possible causes listed below—fish prices, fishing costs, and catch per effort—are interrelated items in fisheries economics, and the separate discussion of them is necessarily a simplification.

1. There may have been an increasing demand for tarakihi, which encouraged the seiners to convert to trawling to work further away from the Gulf and in deeper water. However, fish prices (see Fig. 15) show that snapper was becoming more valuable than tarakihi at this time, which perhaps even reflected a drop in abundance and/or availability of snapper. Increased demand for tarakihi could have been only a minor factor.
2. Costs of seining may have been rising faster than the value of the catch (predominantly snapper). The price of snapper and tarakihi paid to the fishermen increased only slowly during this period, but there are no data on the economics of fishing on which to base any conclusions. This, however, is one of the two main reasons now stated by fishermen to have been the cause of their changeover to trawling.
3. Their other stated reason was that the catch per effort of Hauraki Gulf snapper was dropping if the unit of effort was taken as man-hours of fishing with traditional seining gear. There is some information which supports this in the annual catch and effort data (Fig. 18), where the units of

effort are measured, of necessity crudely, as seiner-years.

The annual catch of all species by Auckland seiners is recorded and the seiner catch of snapper can be calculated (see Table 20 in the Appendix). The total catch per seiner-year can thus be determined (Fig 18); this is based on data for all registered seiners, but most are listed as working full time (New Zealand Marine Department (*Report on Fisheries*) 1928-72) (see Table 14 in the Appendix). The catch per effort of all species, and also of snapper, remained steady until 1948; it dropped sharply in 1949 and continued to fall in 1950 and 1951. This drop coincided with the conversion of many seiners to trawlers, and it is hard to tell which came first, that is, which was the cause and which the effect.

The change to trawling may have occurred because the snapper catch per effort was declining and seining was becoming uneconomic, as was suggested above.

Alternatively, the total catch may have declined because the effort decreased, for example, by several seiners spending less time at sea in spite of being listed as full time. Furthermore the catch per effort may have gone down because the better seiners were converting first. It cannot be determined whether the most or least successful and enterprising seiner fishermen were the first to convert to trawling. However, in subsequent years, while the surviving seiner fleet remained fairly constant, the seine boat catch per effort did slowly improve, with the snapper catch per seiner-year, in particular, recovering to exceed the values of the forties. That is, the drop in catch per effort was not a permanent consequence of the better seiners converting to trawling.

The possibility that the boats which were idle during the conversion period significantly influenced the catch per effort data can also be investigated. From 1926 to 1950 the subtotals of vessels fishing full time (landings over $400 in 1950 and unspecified amounts in previous years) are listed (New Zealand Marine Department (*Report on Fisheries*) 1928-51) (see Table 14 in the Appendix). The annual snapper catch per "all seiners" remained steady until 1949, but the catch per "full-time seiners" declined slowly from 1944 to 1950, with a temporary increase in 1948. (The 1948 increase could have been due to ambiguities in distinguishing between full-time and part-time vessels as conversion to trawling started. It was probably also due to the closing of a productive in-shore flounder ground (the "Dab Patch", at the entrance to the Firth of Thames) to seiners that year, which would have diverted more fishing effort towards snapper.) One might be tempted to draw the conclusion that, if the number of full-time seiners was accurately recorded, the data do show a real decline in catch per effort. Unfortunately, catch per seiner-year is not a good

Fig. 19: *Viking* is representative of the motor trawlers which began working in the early 1950s.

measure of catch per effort, because when catches were poor the fishermen would compensate by making more or longer trips to maintain their annual landing total at a steady level.

No quantitative conclusions are possible, but there is some evidence for a decline in snapper abundance in the late forties. A fishing diary scheme which operated in the early fifties was reviewed by Reid (1969), who commented: "Total landings of snapper for all ports in the Auckland district, for the period 1948 to 1952, fell from 130000 cwt to 75000 cwt despite increased fishing effort directed towards snapper and more distant grounds being worked. The fall-off in snapper catches and the changed catch composition caused great concern for the future of the snapper fishery." This decline in snapper abundance or availability was apparently a real phenomenon and was a cause, as well as an effect, of the conversion of many vessels from Danish seining to motor trawling. The decline may have needed to be only slight, when combined with the 1948 closure of the Dab Patch flounder ground and generally rising costs, to have made Danish seining uneconomic for many of the Auckland vessels.

In short, therefore, about 1950 there was a decline in the total quantity of the fish landed into Auckland owing to the loss of the steam trawlers and a rapid decline in the number of Danish seiners, which converted to trawling or long-lining or transferred to other ports. There was a resultant general shortage of snapper in Auckland, and this is shown by the low snapper export figures for 1949-52 (Fig. 14). Tarakihi exports also declined, but not as much because of the contribution from southern ports.

This shortage of snapper within the Gulf, and the regulations limiting trawling in the area, led directly to the exploitation of fishing grounds further afield.

Increasing catches of tarakihi were made in the East Cape area. Although as individual fish they were less valuable to the fishermen than snapper (export values were about equal), they were sufficiently abundant for the trawlers to make the long trip from Auckland for profitable catches during the early fifties. The main season was February to April, sometimes with a second run in September to November; this usefully complemented the snapper season, which extended from about October to February. The Auckland tarakihi landings reached a peak in 1952 and declined steadily thereafter, but the catches came from so many fishing grounds that interpretation of catch per effort, or comparison with Vooren's (1974) data on the New Zealand tarakihi fishery, is not possible. However, the emphasis given to tarakihi fishing in the fifties is clearly one of the reasons for the fairly slow recovery of the Auckland snapper landings.

The other major new fishing ground which was worked by Auckland trawlers about this time was the Auckland-Northland west coast (Reid 1969). This had been worked by trawlers since the early days of steam trawling, about 1920, but because of the legal requirement to land their catches in Auckland they had been largely restricted to the Ninety Mile Beach area, with some trips south to Manukau. In 1952 this requirement was waived and three trawlers worked out of Manukau Harbour (landing into Auckland City across the narrow isthmus) for a total of 7 trawler-months. Their catches (mainly of snapper) compared favourably with those being made on the east coast. In 1953 Manukau was fully established as a fishing port, worked by 15 trawlers for at least part of the year. Trawler registrations at Manukau (New Zealand Marine Department (*Report on Fisheries*) 1953-61), however, must be disregarded, because they duplicate vessels also registered at Auckland. It is not possible to determine how much fishing effort went on to the west coast grounds.

The dip in Auckland's total fish catch by trawler and catch per trawler-year in 1953 (Fig. 13) was presumably due to some of the larger vessels working into Manukau, as well as to the artificial effect of vessels nominally included in the Auckland fleet (hence included in the catch per effort calculation) but not landing into Auckland. It is therefore more realistic to combine the Auckland and Manukau figures as referring to a single fishing fleet working on several different grounds (Fig. 18).

There are no available figures for the catch by species, method, and port before 1960, except for the data on the Auckland snapper landings used above to show the decline in snapper catch per seiner-year from 1944 (Fig. 13). The following conclusions are based mainly on the total catch of all species.

The catch per trawler-year for Auckland and Manukau from 1950 to 1959 closely followed the rise in total catch; that is, the trawlers were largely responsible for the fluctuating increase in total landings. The big increase in 1953 and 1954 was due to the initial exploitation of the west coast grounds. Catches then remained relatively stable between 1955 and 1959. Because many fishing grounds were worked, it is not possible to determine whether the trawler catch per effort figures show any recovery in the stocks of snapper during the fifties.

On the other hand, the Danish seiner landings do give an indication of a recovery in the snapper stock(s). The catch per seiner-year (all vessels) rose steadily from its low value in 1951. Most of this catch was snapper—70 to 80% in the early fifties, rising to about 90% at the end of the decade. That is, in the late fifties the total seiner catch, the catch per vessel, and the proportion of snapper in the catch all increased.

## THE PERIOD 1960-67

Between 1960 and 1967 the total landings of fish into Auckland showed a slow rise (Fig. 17). The peak in 1965 was balanced by smaller landings at Manukau, so that the combined landings (Fig. 18) showed a steady increase, with a slight drop in 1967. There is no evidence in the more detailed analysis of Hauraki Gulf snapper data (see page 39) for increased fishing in the Hauraki Gulf in 1965. In fact the landing peak is composed largely of species other than snapper, especially gurnard and trevally (see Table 3 in the Appendix).

The rise in snapper landings at Auckland was almost balanced by the decline in tarakihi landings. This may have resulted from an increasing tendency of the Auckland trawlers (which landed about 40% of the snapper caught in the Hauraki Gulf during this time) to fish more often in the Gulf, east Northland, and the western Bay of Plenty, returning to these more traditional grounds after the big tarakihi landings from East Cape in the early and mid fifties. Examination of monthly trends in tarakihi landings at Auckland reveals a change from peak landings in February and March (typical of the East Cape area) during the fifties to April and May (typical of the outer Gulf and east Northland) from 1960 onwards. This difference in time of peak landing apparently reflects a later tarakihi spawning season in more northern waters (L. J. Tong pers. comm.), and it suggests that in these later years more trawlers were working the Hauraki Gulf and east Northland grounds, rather than East Cape or the Bay of Plenty, at least during late summer and autumn, when the main tarakihi catches were made.

It is theoretically possible to detect changes in the relative amount of fishing time spent on different grounds by comparing catch and effort figures for fishing areas and ports of landing. In the Hauraki Gulf snapper fishery the proportion of snapper landed into ports surrounding the Gulf (Whangarei, Auckland, Thames, and Coromandel) which was actually caught in the Gulf increased from 50-60% in 1960-67 to 70-83% in 1968-71 (see Table 10 in the Appendix), which suggests increased fishing there. However, because of the apparently greater abundance of snapper in the Gulf in the latter years (see page 49) this is not necessarily so.

From a consideration of only effort figures a theoretical 28 to 47% of trawlers registered at Gulf ports—Whangarei, Auckland, Thames, and Manukau (see Table 13 in the Appendix)—worked full time in the Gulf (as measured by trawler-years; see Table 16 in the Appendix). Because of registrations for only part of the year, lost fishing time through surveys and refits, and for other reasons this percentage is artificially low; a greater proportion of the trawler fleet would be fishing mainly full time in the Gulf. The significant feature is that though the percentage fluctuated, there was no trend upwards or downwards during the sixties, that is, no change in the relative amount of time spent fishing in the Gulf.

The Danish seine fishing effort figures show that between 60 and 80% of vessels registered at Gulf ports theoretically worked full time in the Hauraki Gulf. This higher percentage than that for trawling reflects the fact that most Danish seiners work predominantly in the Gulf itself.

During this period the numerical strength of the trawler and seiner fleet remained fairly constant, but the catch per effort figures show 1961 to have been the poorest year for both fishing methods over the decade. One Danish seiner operated from Thames from 1965, but it had only a minor effect on snapper landings at that port (see Fig. 6).

The number of line and net boats registered at Auckland and smaller Gulf ports declined in 1963-64, probably as a result of the general delicensing of the fishing industry in 1963; as licences were no longer hard to get, they were relinquished by those persons who were merely holding them for possible future use. Later there was a slow rise in numbers of registered boats as part-time commercial fishing became more popular.

The published statistics from 1960 onwards contain less information from which catch per effort figures can be derived. The unpublished data on which they are based, however, are available for computer analyses. A programme which retrieved monthly catch, effort (days at sea and trips), and catch per effort values (see Table 24 in the Appendix) yielded detailed results which are discussed in the sections about individual fishing methods (pages 39-48).

Export quantities and prices of snapper, and the price paid to fishermen, remained fairly stable during this period. The years 1960-67 were a relatively quiet period in the Hauraki Gulf snapper fishery.

## THE PERIOD 1968-71

The 1968 snapper landings into Auckland were 16% greater than for 1967, and landings during the "school fish" season (August-December in 1968) increased by a striking 43% over those in 1967 (New Zealand Marine Department (*Report on Fisheries*) 1968, 1969). Most of this increase can be attributed to the Danish seine fleet, which landed 91% more snapper than in 1967. The spring (October-December) landings of seiners were 158% higher than in 1967 (see Table 22 in the Appendix), though the number of

Fig. 20: *Eskdale,* a 17-m steel vessel, is typical of the combination trawler-seiners built during the late 1960s.

vessels fishing and their time at sea in each year were about the same.

A large part of this increased catch can be attributed to the use of a larger and higher-opening seine net, similar to the Skagen net, by many vessels. No quantitative data are available, but vessels using this new style of net are reported to have made much larger catches of snapper than vessels fishing alongside them and using the traditional seine net based on the English haddock net.

Catches by two other methods also increased in the late sixties. In 1967 trawl catches of snapper, both total catch and catch per effort, rose considerably over previous years and remained at the higher level until 1971 (see Table 21 in the Appendix). Long-line boat catches increased slightly in 1967 and conspicuously in 1968 and also remained at the higher level. However, catches by set net boats fluctuated apparently erratically during the sixties for reasons which will be discussed below. Though the fishing power of each of these fleets undoubtedly increased during this time, the evidence also points to an increased abundance of snapper in the Hauraki Gulf area in the late sixties, which was first apparent on the outer Gulf grounds worked by the trawlers in 1967 and on the central Gulf grounds worked by seiners and line boats in 1968.

The big landings by Danish seine boats in 1968 renewed interest in this method of fishing, and the number of registered Danish seiners working out of Auckland increased from 13 in 1968 to 23 in 1969, 33 in 1970, and 39 in 1971. Some of these were trawlers which converted (or reverted) to seining as a more profitable fishing method. But most were new vessels built as all-purpose boats (though basically trawlers or seiners) and fitted out as seiners to take advantage of the expanding Hauraki Gulf snapper fishery in 1969-71 (Fig. 20). In 1968 almost similar quantities of snapper were taken by trawlers and Danish seiners. In 1969 Danish seining replaced trawling as the principal fishing method for snapper in the Hauraki Gulf.

Catch per effort of Hauraki Gulf snapper by long-line and set net boats have fluctuated about the same level since 1968 (see Table 21 in the Appendix). Trawler and Danish seine catch per effort, however, fell slightly at the same time that the total catch by these methods increased. This trend is described in the more detailed accounts of trawling and Danish seining below.

# EXPORTS OF SNAPPER

Snapper has been an important fish export from New Zealand (Fig. 14), particularly from Auckland, since the late twenties. The state of the export market has considerably influenced development of the Auckland snapper fishery.

The combined effects of the economic depression in the early thirties and the difficult Australian market for snapper have already been described (pages 21 to 25). Snapper exports declined until 1947 and then recovered to fluctuate between about 3000 and 15 000 cwt a year. Devaluation of Australian currency in 1957 made New Zealand exports less competitive and resulted in a significant drop in snapper exports in 1958 (Fig. 14). There was only a slight increase in the export price of snapper from 1952 to 1967, which indicated the competitive nature of the market to Australia at that time.

The export trade faced two major difficulties: competition from cheap fish exports from Europe and South Africa and the impossibility of maintaining a regular supply because of the seasonal fluctuations in landings. Relatively short-term export contracts meant that there was no guaranteed outlet for snapper landings in excess of local requirements, and sometimes the depressed state of the fish export trade was a factor limiting Hauraki Gulf snapper landings, particularly during the spring peak of Danish seine catches, when the wholesale markets imposed quotas on the quantity of snapper each vessel could land from each trip.

The opening up of new markets, mainly the United States and Japan, led to a substantial rise in snapper exports in 1968. The quantity increased three and a half times from 1967 to 1971, and the value increased almost sixfold (Fig. 14). Japan took considerable quantities of high-quality, small whole snapper or *t'ai* (Fig. 21); this development was probably assisted by the extension of New Zealand's fishing zone to 6 miles in 1966 and 12 miles in 1967, which therefore prevented Japanese fishing vessels from working New Zealand's more productive in-shore snapper fishing grounds.

[Barry McKay photograph by courtesy of Sanford Ltd.

Fig. 21: A carton of high-quality snapper before chilling or freezing for export. Snapper exports to Australia, Japan, and the United States increased sharply in the late 1960s.

# REGULATION OF THE AUCKLAND SNAPPER FISHERY

Regulations controlling the Auckland snapper fishery have taken two forms: minimum mesh size and closure of in-shore fishing grounds. A large proportion of the harbours, bays, and trawlable in-shore grounds around northern New Zealand were closed to trawlers, either seasonally or permanently, by 1971 (Fig. 22). Essentially the same grounds were also closed to Danish seiners (Fig. 23), with complex seasonal variations for different sizes of vessel in the Hauraki Gulf (Fig. 24). Both forms of regulation are aimed at protecting the snapper on known spawning and nursery grounds and at preventing serious competition between different groups of fishermen.

Three stages can be recognised in the development of these regulations.

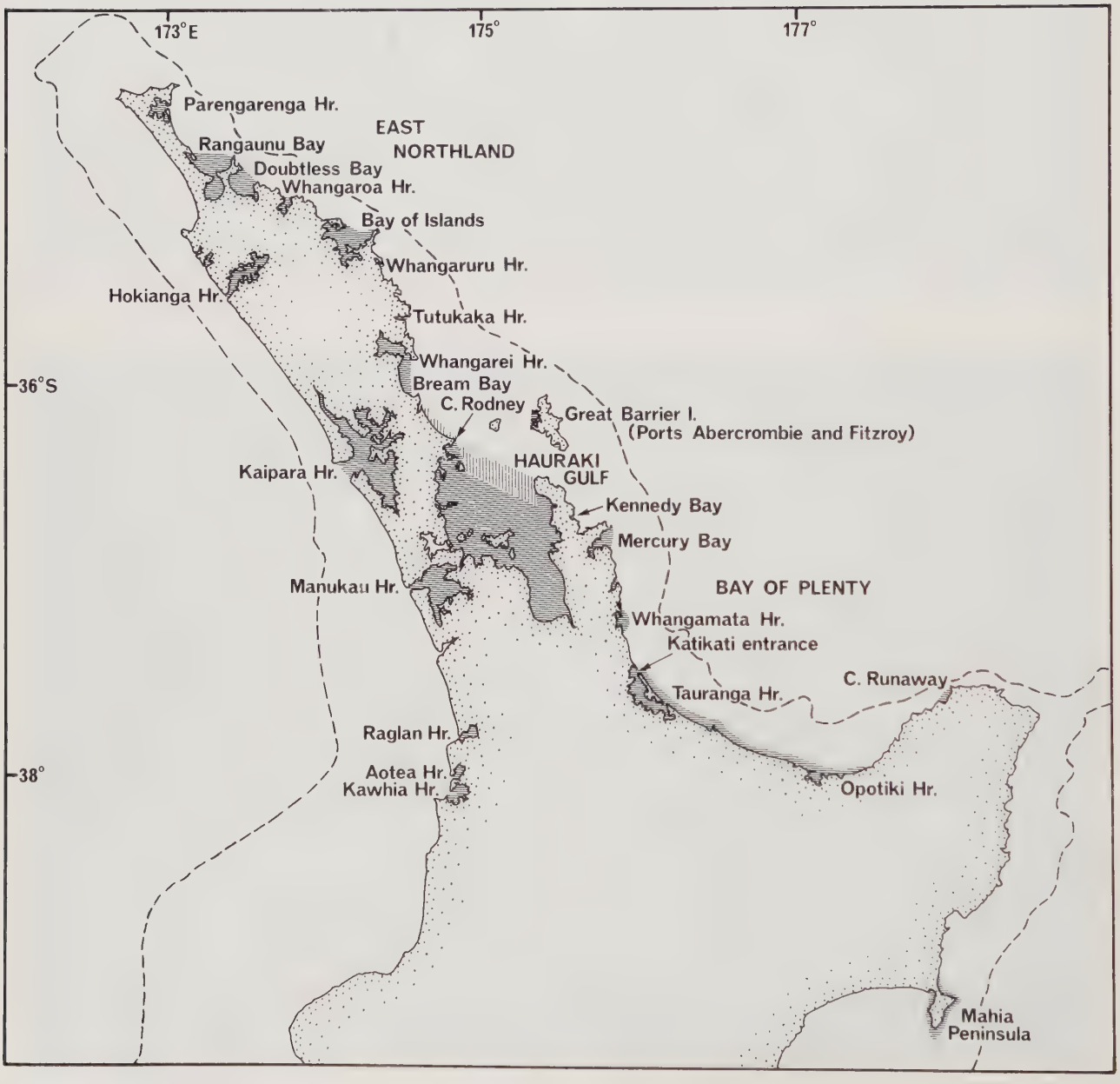



Fig. 22: In-shore fishing grounds in northern New Zealand closed to trawlers, as at 1971. Permanent closure is shown by horizontal hatching, seasonal closure by vertical hatching (see Fig. 24). The dashed line shows the edge of the continental shelf at 150-180 m.

During the first stage, which lasted to about 1920, regulations were developed which sought merely to make appropriate adjustments between conflicting interests of different groups of fishermen. Much of the Hauraki Gulf was closed to trawling. Moreover, minimum trawl cod-end mesh size was set at 4 in. (10.2 cm) in 1903, a regulation still in force in 1971.

The second stage lasted through the twenties and thirties and was characterised by a concern for conservation of the Hauraki Gulf snapper stock, particularly on the spawning and nursery grounds. It was recognised that Hauraki Gulf snapper were becoming less abundant, and there was some fear that true overfishing was imminent (Hefford 1929). However, some regulatory decisions were still directed towards allowing each group of fishermen a ground on which to fish with minimum interference from "more efficient" methods. Additional parts of the Gulf were closed to trawling, including a seasonal closure of the spawning grounds; these regulations were still in force in 1971. Much of the inner Gulf was also closed to Danish seining. This forced Auckland vessels to work further afield and brought them into conflict with

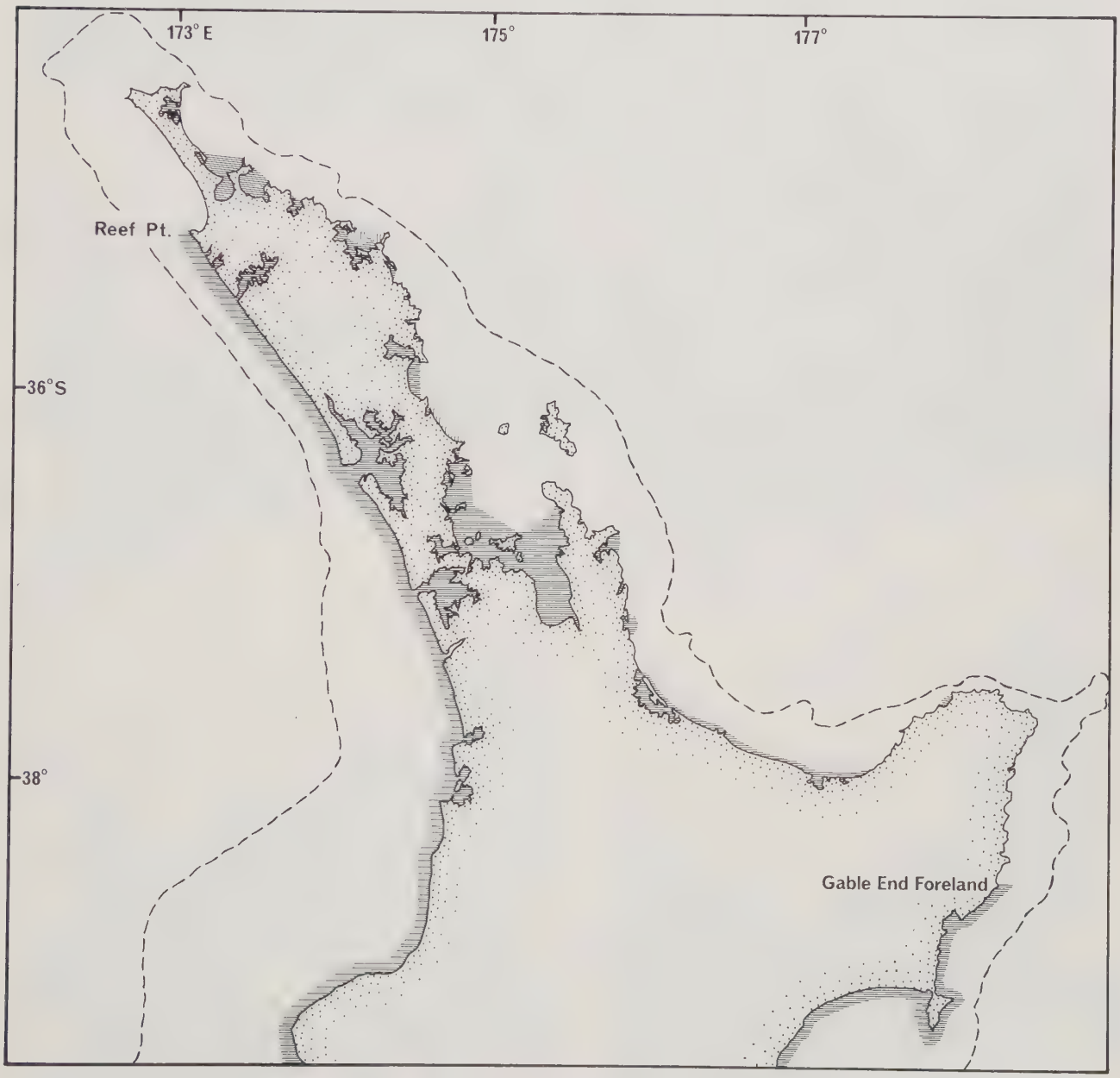


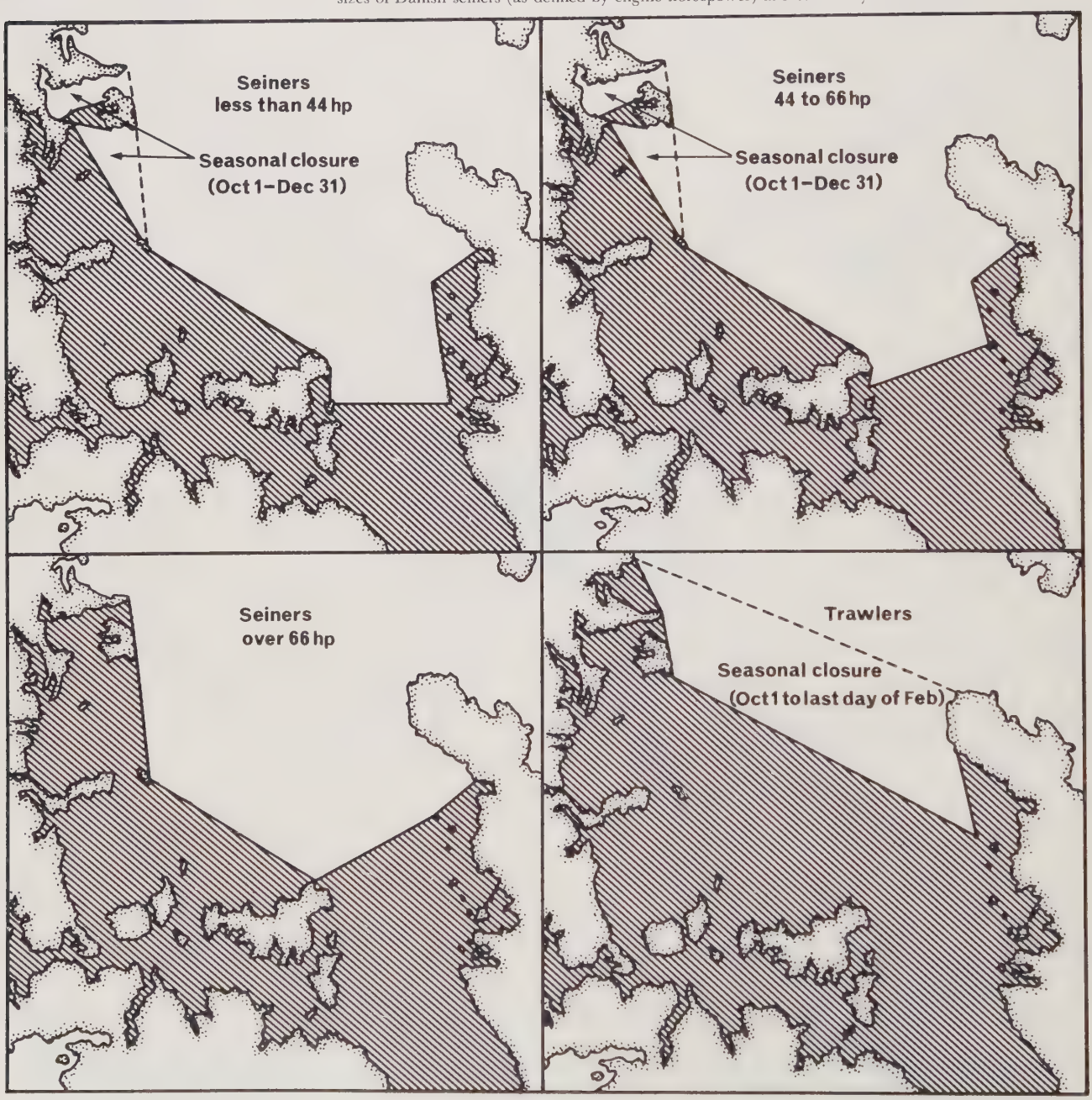

Fig. 23: In-shore fishing grounds in northern New Zealand closed to Danish seining, as at 1971. Permanent closure is shown by horizontal hatching, seasonal closure by vertical hatching. For details of Hauraki Gulf closures see Fig. 24. The dashed line shows the edge of the continental shelf at 150-180 m.

smaller Northland and Bay of Plenty fishing boats. Other consequences of working in more open water and further from their home port are illustrated in Figs. 25 and 26. Most of the fishable bays and harbours along the north-east coastline were closed to both trawling and seining during the thirties. In 1926 the minimum cod-end mesh size for Danish seiners was set at 4½ in. (11.4 cm), and in 1936 this was increased to 5 in. (12.7 cm).

The third stage extended from about 1940 until the late sixties. During this time it was believed that snapper were not being overfished and that the fishery was being controlled by internal economic factors, the principal of these being a limited export market for seasonal landings surplus to local demand. Falling snapper catches after 1948 caused some concern about the state of the fishery, and the Marine Department's newly acquired research vessel *Ikatere* was used for several years to investigate the relationship between trawl mesh size, the escape of small snapper, and

Total closure

Fig. 24: Details of the Hauraki Gulf areas closed seasonally or permanently to different sizes of Danish seiners (as defined by engine horsepower) and seasonally to trawlers.



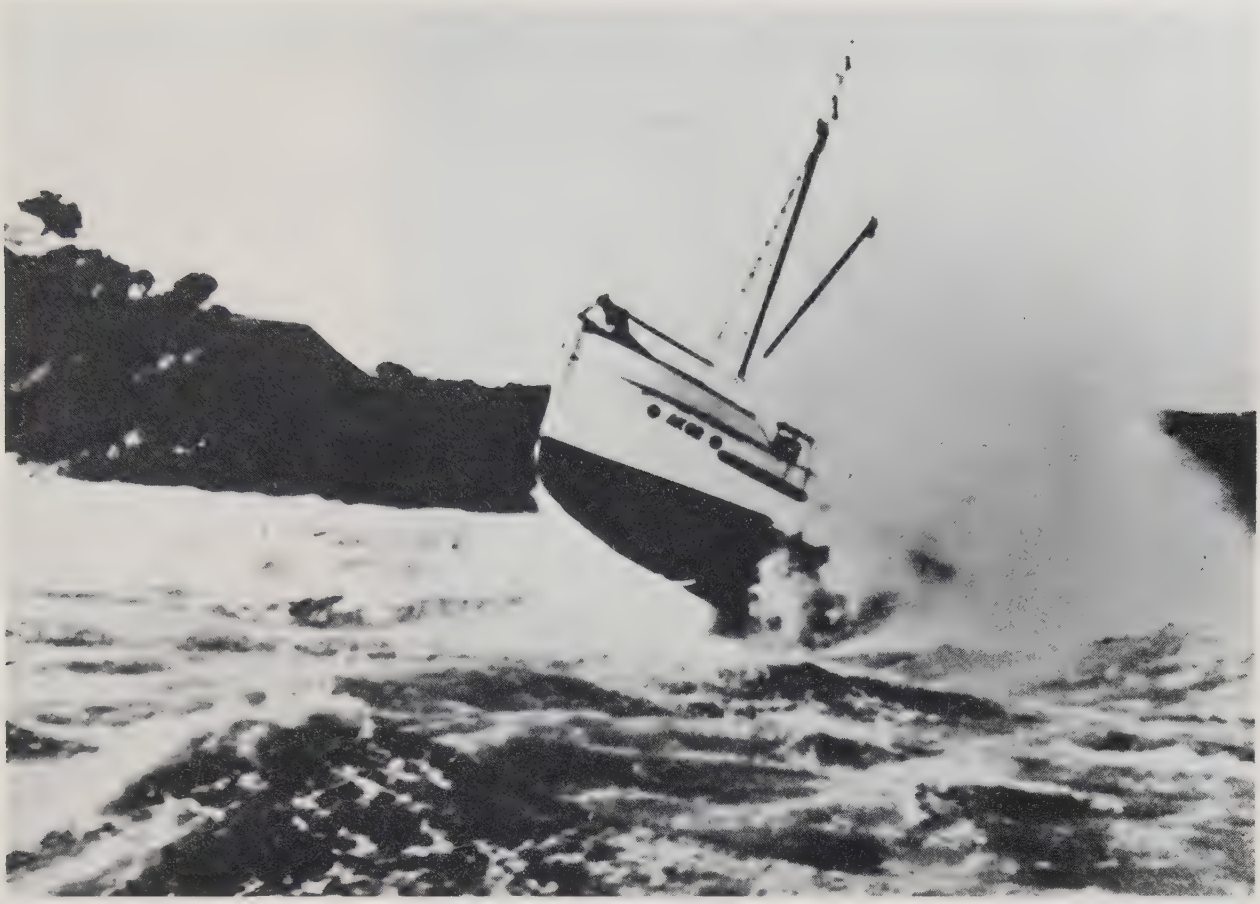


Fig. 25: Regulatory closure of much of the Hauraki Gulf to Danish seining and trawling forced these vessels to work further afield and encouraged the building of larger Danish seiners and trawlers. One of the smaller seiners, *Daisy Belle,* is shown returning to port through heavy seas.

subsequent recruitment to the fishery (Cassie 1955). This work in fact implemented a recommendation made much earlier by the 1937-38 Sea Fisheries Investigation Committee (Anon. 1938). Snapper catches recovered naturally in the mid fifties, and Cassie's suggestion that an increased mesh size would benefit the fishery was not adopted. The fishery appeared to be functioning satisfactorily with a minimum of interference, and no significant changes were made to the regulations apart from redefining the grounds which had been allocated to different sizes of Danish seiners in 1950.

There is no evidence that the progressive closing of the in-shore fishing grounds to trawlers and seiners caused any major crises in the industry. In fact the available information suggests that, apart from seasonal scarcities on all grounds, the quantities of snapper landed were generally equal to the demand and sometimes sufficiently in excess for a quota system to be imposed. It has been stated (for example, Scott (1962) and Slack (1969)) that before 1963 the restrictive licensing of the New Zealand fishing industry, which was a limited-entry fishery in that licences were usually granted only to purchasers of existing fishing units, seriously inhibited its growth. Although this system did encourage the retention of older fishing vessels in the fleet and discourage younger men from entering the industry, its replacement in 1963 by a simple permit-application system had little immediate effect on the Hauraki Gulf snapper fishery. This change had little influence on overall fishing effort and catch, but did initially remove the non-operative registered fishermen (who retained licences only because they increased the resale value of their vessels). It also subsequently encouraged the registering of more part-time line and net fishermen, whose activities during times of seasonal oversupply were detrimental to full-time fishermen. No major development in the fishery took place until 1968, and it did not then depend on any easing of restrictions or regulations, but resulted from improved fishing gear design, increased export sales, and a greater abundance of snapper on the fishing grounds.

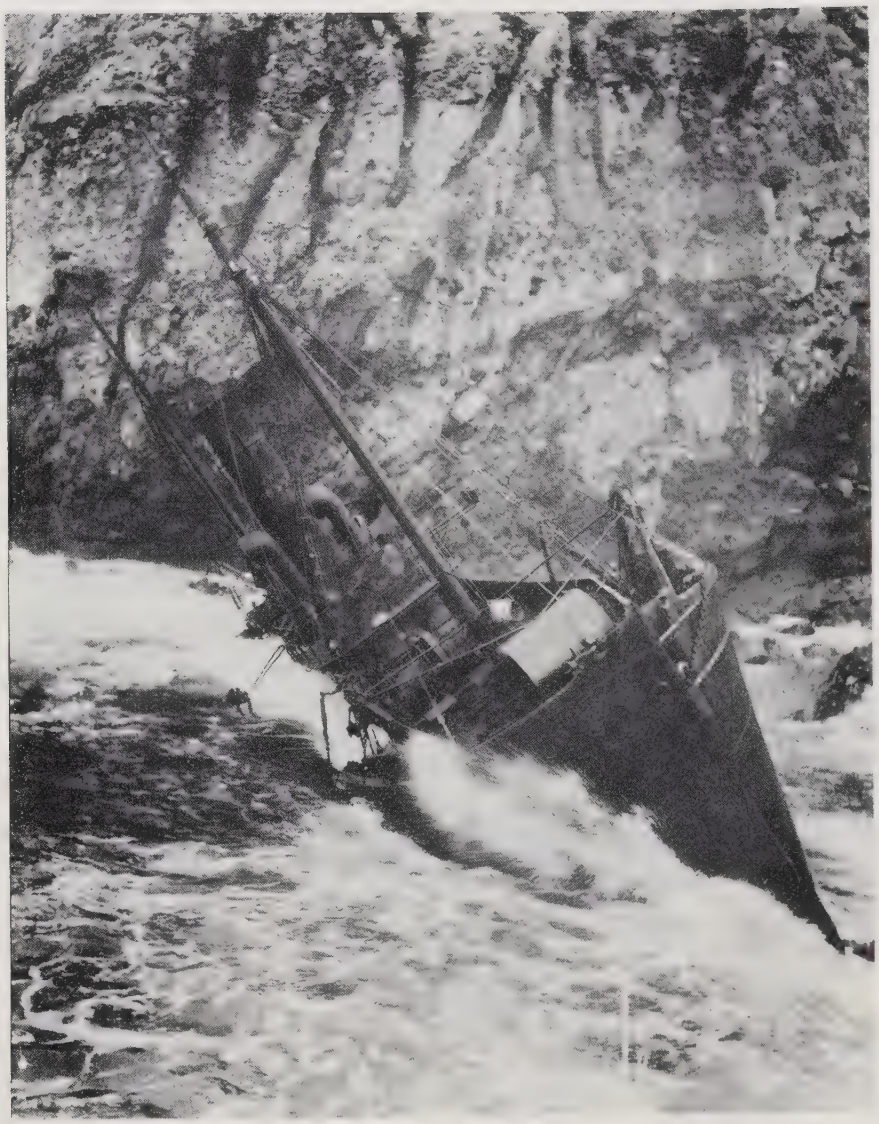


Fig. 26: Even the large steam trawlers were not immune to the Hauraki Gulf's weather. While returning from a fishing trip in the Bay of Plenty the almost new, 35-m *Thomas Bryan* was wrecked near Cape Colville during a stormy night in June 1928.

[*N.Z. Herald* photograph

By about 1970 there was some movement towards a fourth stage in the regulation of the fishery: an acceptance by the industry that there was a danger of "overfishing" the Gulf and that some limits to the catch would have to be imposed (either by Government regulation or by the industry itself), depending on regular surveys of the available resource and monitoring of catch per effort trends.

# THE HAURAKI GULF SNAPPER FISHERY BY FISHING METHOD

Tables 21 to 24 in the Appendix show the main trends of each fishing method for the years 1960-71 based on computer analyses of the monthly fishing returns.

The data have been grouped by fishing method and month for fishing area 3 (Hauraki Gulf). This section thus differs from the preceding ones, which were restricted by the published data to interpreting the landings into Auckland and other Gulf ports. The data are presented as: total catch of snapper, number of vessels fishing, number of trips, number of days at sea, and catch per effort measured as catch per trip and catch per day at sea. Additional values such as average length of trip and number of trips per vessel can be derived from the data. The monthly figures can themselves be grouped into 3-monthly or seasonal totals, with summer beginning in January (Figs. 27 and 28); annual totals and averages can also be obtained. These seasons are based on the hydrological seasons of the Gulf, which start later than climatological seasons (see Paul 1968, 1976).

## MOTOR TRAWLING

Although steam trawlers had worked at intervals in the Gulf between 1899 and 1951, motor trawling did not begin until 1948. The first motor trawlers were converted Danish seiners, but during the sixties several new trawlers were built (Fig. 29).

Auckland trawlers work several fishing grounds for a variety of species and land at two ports, which complicates interpretation of their Hauraki Gulf snapper catches, particularly from the published annual *Report on Fisheries* statistics and also from the more detailed analysis of the monthly fishing returns for 1960-71 presented below. A limiting factor to the accuracy of these data is the tendency for the larger trawlers to fish in more than one statistical area during a single trip. Unless a fisherman's return specifies the catch and effort per area, these must be arbitrarily divided between the areas fished.

### Annual Trends

**Catch.** The catch fell to 16 000 cwt in 1962, recovered to about 25 000 cwt over the next few years, then increased to about 35 000 cwt in 1967 and subsequent years. When expressed as a percentage of total Hauraki Gulf snapper landings, trawl-caught snapper ranged between 30 and 50%. This fell to about 27% in 1970-71, which reflects the decrease in importance of this method relative to Danish seining.

**Effort.** The number of trawlers registered at Auckland and other Hauraki Gulf ports altered little from 1960 to 1971, averaging 32. The number actually fishing in the Gulf was much lower and, when expressed as the theoretical number of boats which fished full time in the Gulf, showed a decline to 8 in 1962, then a rise to 12-13 in 1965-70. The number of days at sea and number of trips showed similar trends.

**Catch per Effort.** Much of the decline and subsequent rise in catch can obviously be attributed to a change in effort. However, the catch per trip and catch per day figures show low values in 1961, a year before the main decline in effort, and they also show a distinct increase in catch per effort in 1967 and subsequent years.

**Length of Trip.** During the sixties the number of days per trip ranged between 5 and 6. There is no obvious relationship between trip length and catch per effort, presumably because fishing for snapper in the Hauraki Gulf was only part of the trawler fleet's activities.

### Seasonal Trends

**Catch.** In the early sixties there was considerable fluctuation, but no regular seasonal trend, in landings. In 1968-71 there was a distinct peak in spring.

**Effort.** There were moderate seasonal fluctuations in effort, with a slight tendency for more fishing to be done in the Gulf in autumn and winter.

**Catch per Effort.** In most years, particularly 1968 and later, catch per effort was highest in spring and summer.

**Length of Trip.** Seasonal averages of number of days per trip range from 3.8 to 6.3. The higher values generally correspond with seasons when more boats were fishing in the Hauraki Gulf. This relationship might be due to the larger boats, which generally made longer trips to more distant grounds, periodically fishing in the Gulf (perhaps on their way to or from their other grounds) and therefore being included in the total for the Hauraki Gulf.

### Monthly Trends

For a variety of reasons, mostly related to irregular fishing for snapper in the Gulf, the monthly patterns of landings, effort, and catch per effort are very erratic, and an analysis of them is not worth while.

### Size and Horsepower of Trawlers

The horsepower of Auckland trawlers increased more rapidly during the sixties than did the size of vessels or average age of the fleet (see Table 17 in the Appendix), which reflects the fact that during this time several new, slightly larger but considerably more powerful trawlers were built, and several of the older trawlers were equipped with more powerful engines. These changes were intended to increase the performance of the Auckland trawler fleet and could well have been one factor behind the recorded

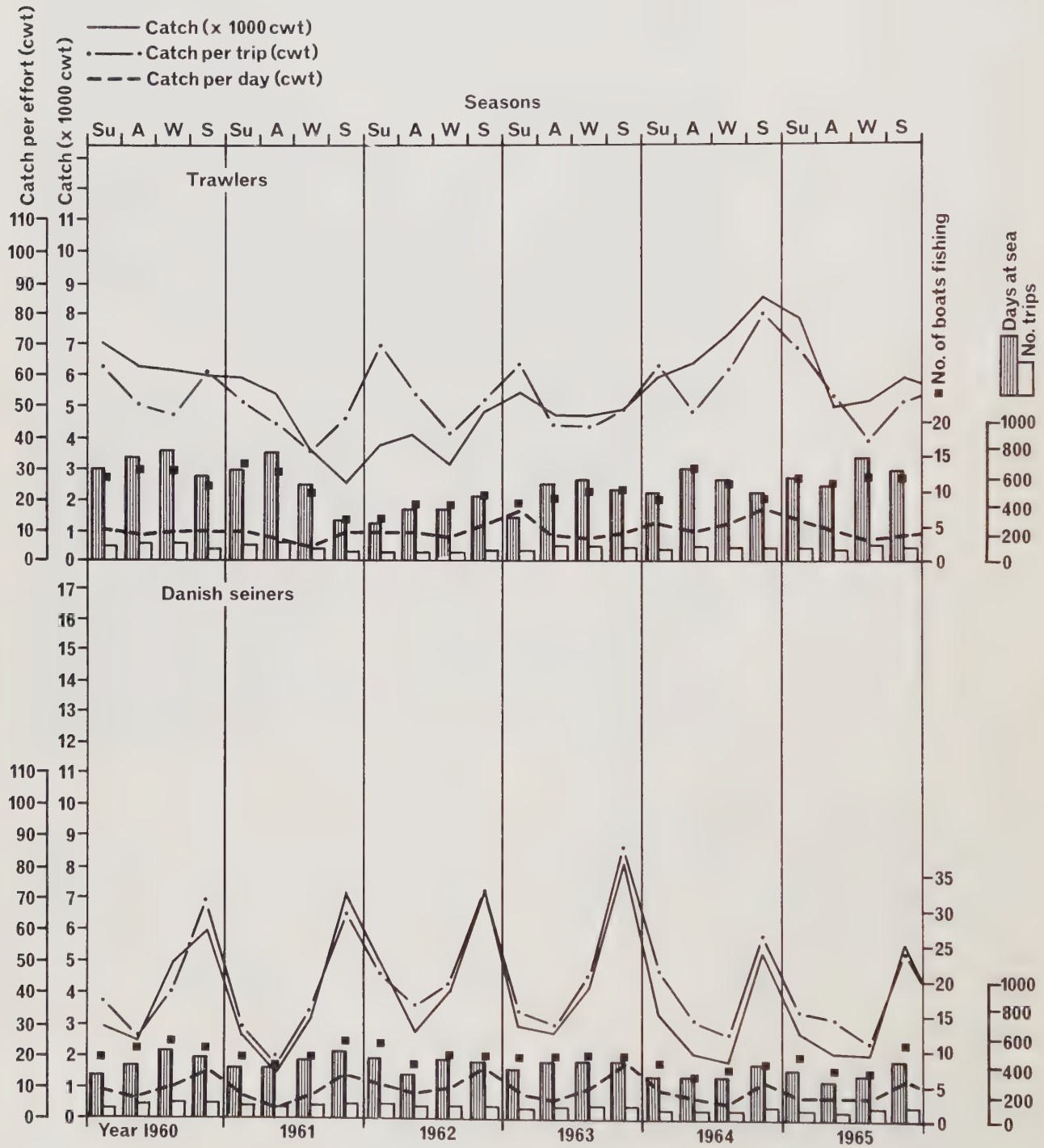
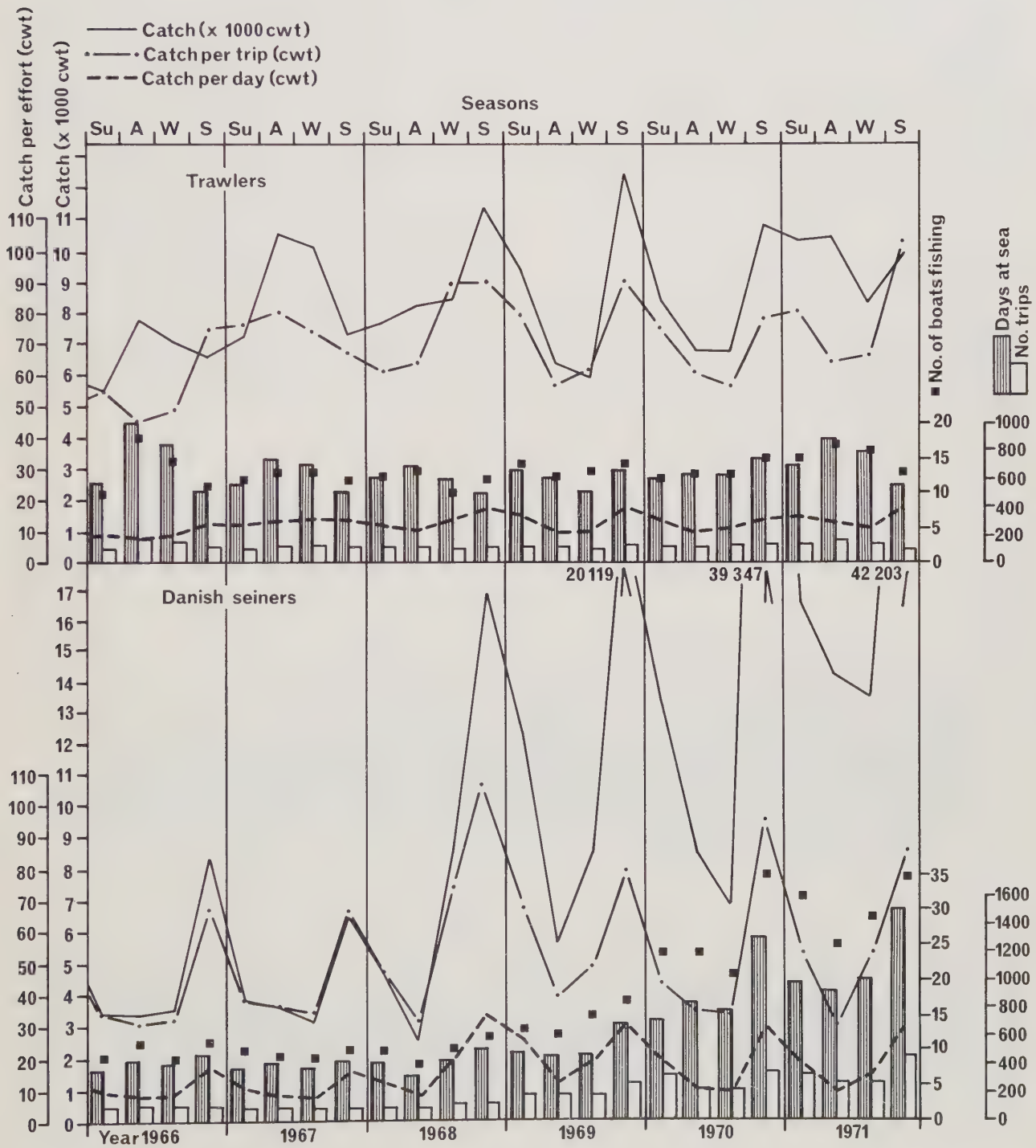



Fig. 27 (above and right): Seasonal variations of trawlers' and Danish seiners' catch, effort, and catch per effort of Hauraki Gulf snapper, 1960-71.

increase in snapper catch per effort in the late sixties. This possibility was explored by attempting to relate fishing performance in terms of snapper catch per day at sea to vessel characteristics (such as size and horsepower) from monthly data for 1971, but no clear relationships were detected, presumably because the Hauraki Gulf trawl fishery for snapper is complicated by being only one component in a larger mixed-species fishery.

## DANISH SEINING

To set the following section in perspective, a brief review of the development of seining in the Gulf is necessary. The Danish seine fleet increased rapidly



after its start in 1923 and though at first it comprised small launches, after about 1930 it had many larger vessels specifically built for seining. The fleet reached a maximum of 40-50 vessels about 1940. Seiners became marginally economic in the late forties, and most converted to trawling or returned to line and net fishing. From 1953 to 1968 the remaining 11-14 vessels fished steadily, taking average catches. Several boats adopted new, larger nets in 1968 and made large catches; most of the fleet used the new net in subsequent years.

Danish seining is very seasonal, and the calendar year artificially divides the main fishing season. The following description of annual trends is based first on calendar years to facilitate comparison with the other fishing methods and then on July-June years to allow a more realistic presentation of the Danish seining data.

### Annual Trends by Calendar Year

**Catch.** The catch fluctuated between 12000 and 18000 cwt from 1960 to 1967 and rose steeply in 1968 and following years to reach 78000 cwt in 1971. When expressed as a percentage of total Hauraki Gulf snapper landings, Danish seine-caught snapper generally ranged between 25 and 35%, falling to 22% in 1964. This increased after 1968 to reach 47% in 1969, when Danish seining became the most important fishing method for snapper in the Hauraki Gulf, and 58% in 1971.

**Effort.** The number of Danish seine vessels registered at Auckland remained steady at 11-13 between 1960 and 1968, then increased to 23 in 1969, 33 in 1970, and 39 in 1971. One or two boats worked from Thames from 1965 and several boats worked out of Whangarei and Coromandel from 1969, the total number of Danish seiners in the Hauraki Gulf area being 53 in 1971. However, the number fishing full time did not increase to the same extent, because many of the registrations in 1970 and 1971 were of trawlers which converted to seining for only part of the year, usually spring (October-December), when seine boat catches reach their maximum. The theoretical number fishing in the Gulf was much lower, falling from 10 in 1960 to 7 in 1964 and returning to 10 in 1968, then increasing to 30 in 1971. The number of days at sea and number of trips show similar trends. However, the changes in true fishing effort after 1968 cannot be determined accurately

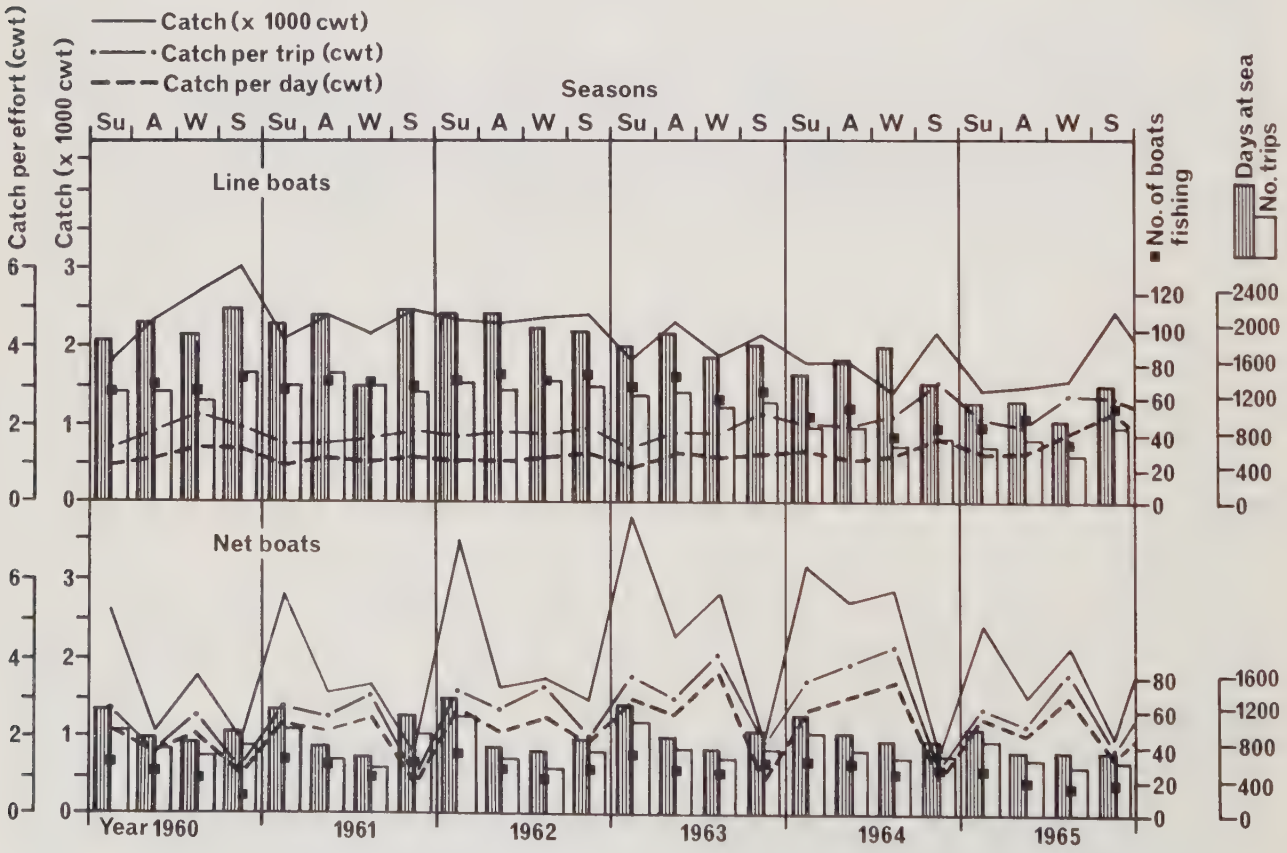



Fig. 28 (above and right): Seasonal variations of line vessels' and net vessels' catch, effort, and catch per effort of Hauraki Gulf snapper, 1960-71.

because the new and larger Skagen net, progressively adopted by most vessels, undoubtedly increased their fishing power. This must be kept in mind in the interpretation of the catch per effort data for these years.

**Catch per Effort.** From 1960 to 1967 the catch per effort remained fairly steady at 9-12 cwt per day and 37-51 cwt per landing. In 1968 it increased sharply to 19.6 and 73.0 cwt respectively. The catch per day increased to 22.4 cwt in 1969 before declining in 1970 and 1971, but the catch per trip declined in each of these 3 years. The relationships between trip length and number, catch per day, and catch per trip, and the requirements of the fish-processing sheds, are discussed on page 44.

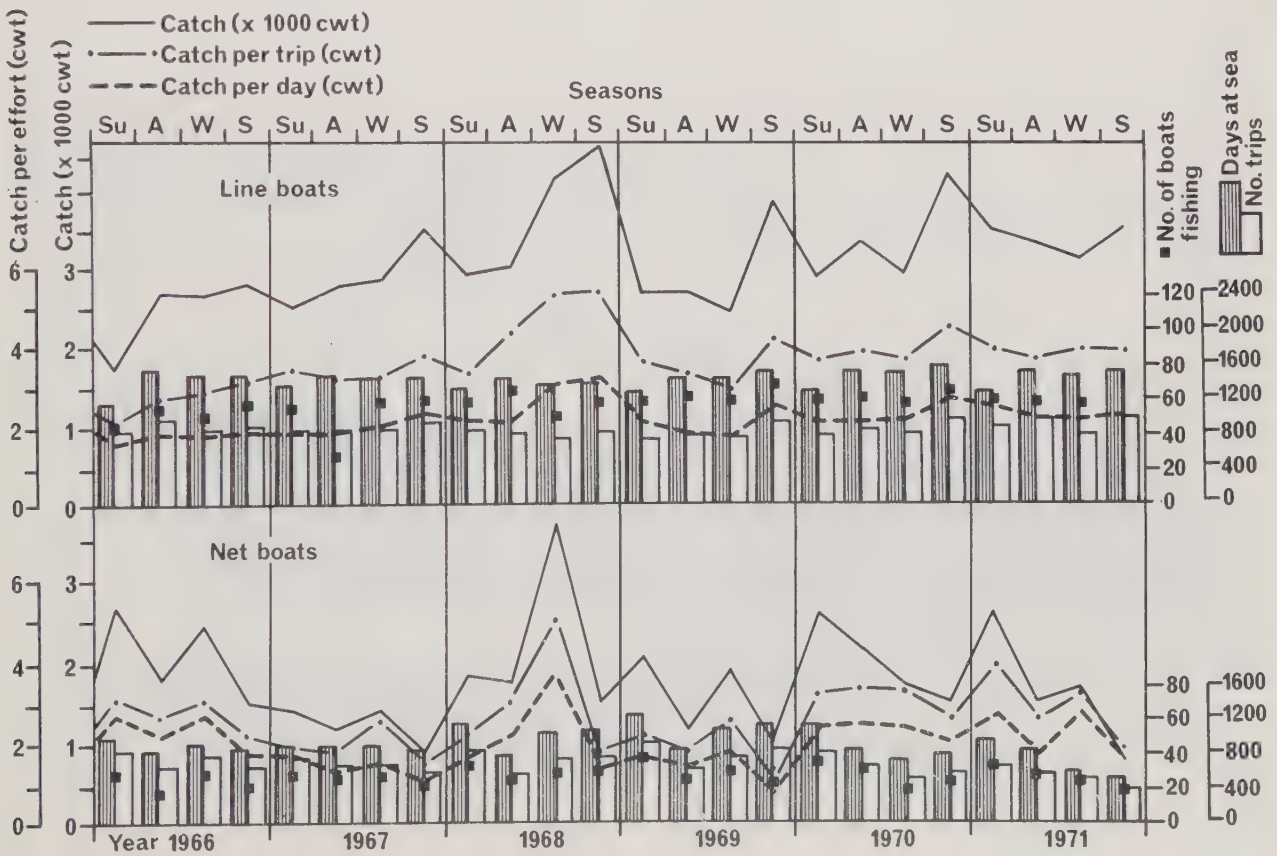
### Annual Trends by July-June Year

**Catch.** The catch fluctuated between 16000 and 19000 cwt between 1960-61 and 1967-68, dropping to 12000 cwt in the 1964-65 fishing season. It more than doubled to 43000 cwt in the 1968-69 season and continued to rise in subsequent seasons.

**Effort.** Data on the number of seiners actually fishing in the Gulf show that though there was a slight increase in 1968-69, the first season of big catches, the main increase did not come until the following season. The number of days at sea and number of trips show similar trends.

**Catch per Effort.** Apart from the low values in 1964-65 and 1965-66, both catch per day and catch per trip stayed fairly steady until the 1968-69 season, when both increased sharply. Catch per day more than doubled and then declined slightly in 1969-70 and 1970-71. Catch per trip increased by about 60%, then in 1969-70 dropped back almost to its pre-1968 value; in 1970-71 it increased slightly again. Catch per effort thus appears to be declining after a peak in the 1968-69 season, but data on the number and length of Danish seiner trips must be examined to explain the apparent anomalies in catch per trip values (see the following section). Furthermore, as the fishing power of the seiner fleet increased during these years through the adoption of a larger net, the true catch per effort must be declining faster than the above figures indicate.

**Length of Trip.** During the early sixties the average number of days per trip was 4 to 4½. This declined to 3 to 3½ days in the late sixties. There is an apparent relationship between length of trip and the total catch and catch per effort, the increased catches and higher catch rate (per trip and per day) from the 1968-69 season onwards resulting in a shorter trip.



Subsequently, as catch rates declined from their initial peak trip length tended to increase again.

The average annual number of trips per vessel, which had varied between 40 and 45 from 1960 to 1968, rose to about 50 in the 1968-69 and 1969-70 seasons and fell again to 43 in 1970-71; this was associated with the drop and subsequent rise in trip length noted above. Thus, in 1968-69 and 1969-70 the Danish seiner fleet made relatively more but shorter trips; this was presumably in response to the fish-processing sheds' requirement for a regular moderate supply rather than a fluctuating intake of periodic big landings. Another factor which helps determine the length of trip is the fishermen's expectation of how good the fishing will be. Most seiners (and trawlers) have specific days on which to land their catch, and so they leave port the necessary number of days beforehand to obtain a full load. The length of trip therefore reflects expected fishing success, which might explain the apparent anomaly of why trips were shorter in 1969-70 than in 1968-69, the latter being the first year of "unexpectedly" high catches.

Catch per day is thus a better measure of catch per effort than is catch per trip, and therefore 1968-69 was the year of highest catch per effort. The figures for average catch per day over the 6 months from October to March, which cover the whole of each school fish season and omit the autumn-winter period of low catches, also show the 1968-69 season at 33 cwt to be higher than the following 2 years at 27 cwt per day.

### Seasonal Trends

**Catch.** There is a clear trend in all years for a high catch in spring, a moderate catch in summer, and a low catch in autumn and/or winter.

**Effort.** Greatest fishing effort was expended in spring. Over 20% more vessels were fishing then than during the rest of the year, spending over 30% more days at sea. The total number of trips increased by over 40%, trips by individual vessels increasing by about 15%.

**Catch per Effort.** Catch per day or per trip was generally lowest in autumn, slightly higher in winter,

[By courtesy of Sanford Ltd.

Fig. 29: *San Alexandra*, a modern 21-m vessel, illustrates the move towards slightly larger trawlers in the late 1960s.

and a little higher again in summer. Catch per effort in spring was about double that of other seasons.

**Length of Trip.** Trip length tended to be longest in autumn and winter, when fishing is poorest, and slightly shorter in summer than in spring.

### Monthly Trends

The major event in the Danish seiners' year was the spring run of pre-spawning and spawning "school snapper". This generally began in September or October, but was sometimes as early as July. It reached a peak in October or November, occasionally December or January, and declined in January or February. Sometimes there was a smaller peak in landings 2 months before or after the main peak. Catch, effort, and catch per effort showed similar trends.

### Size and Horsepower of Danish Seiners

From about 1930 most Hauraki Gulf Danish seiners have been between 12 and 15 m long. There have always been fluctuating numbers of both smaller and larger vessels, but about 1950 most of the latter converted to trawling. During the sixties a few larger vessels were built or converted from trawlers, and this trend accelerated after 1968.

Until the late sixties engine horsepower ranged from 36 to 95, depending mainly on boat size, and being rather less than for trawlers of equal size because of the limited requirement for towing the net. Recently built vessels have engines up to 200 bhp, being all-purpose vessels also capable of trawling.

Horsepower was used as the basis for the 1950 regulations, which defined the areas of Hauraki Gulf closed to three groups (smaller than 44, 44-65, and larger than 66 hp) of Danish seiner. The less powerful (usually smaller) seiners were allowed to fish closer in shore than the larger ones (Fig. 24).

The available data are inadequate for a proper analysis of the effect of vessel and motor size on catch and catch per effort, because of such factors as different fishing grounds, periodic replacement of engines, intermittent fishing activity of some of the smaller vessels, and considerable individual variation in catches and presumably fishing ability between vessels of similar size in the small fleet.

## LONG-LINING

The history of long-lining in the Hauraki Gulf extends back to 1912, when it replaced hand-lining; it was an important method of fishing until steam trawling began in 1915 and Danish seining in 1923, but there is no information on the early catches. During the thirties about 2000-4000 cwt of fish, most of it snapper, was landed annually by this method. The scattered data on this fishing method suggest that catches declined during the forties, recovered about 1950, and fluctuated irregularly afterwards. Snapper catches are frequently sold for cash to small fish markets and shops or directly to the public at numerous boat landing places around the Hauraki Gulf. There is a strong probability that because many self-employed fishermen are reluctant to disclose their annual earnings to Government scrutiny, the recorded landings considerably underestimate the true catch. This bias in the data is assumed to be constant, and the 1960-71 data are taken at their stated value in the following discussion of annual and seasonal trends.

### Annual Trends

**Catch.** The annual landings of line-caught snapper stayed constant in 1960-62, declined to a low point in 1965, then rapidly recovered to an even higher level in 1967 and subsequent years. When expressed as a percentage of total Hauraki Gulf snapper landings, line-caught snapper ranged between 13 and 19% until 1968 and then declined to 10% in 1971.

**Effort.** The number of boats registered at Hauraki Gulf ports to work long-lines (most also worked set nets) reached about 280 in 1962 and 1963, declined sharply to 175 in 1964 (probably partly as a result of the removal of restrictive licensing; see pages 37 and 46), then climbed steadily to about 400 in 1971. The latter increase is due to an increasing proportion of part-time fishermen in the fleet, as it is not shown by the theoretical number of boats which worked full time in the Gulf—the best measure of fishing activity by this method. The theoretical number of boats working full time in the Gulf fell sharply in 1964 and 1965 and then recovered to almost that of the early sixties. The numbers of trips and days at sea show similar trends, but the increase after the 1964-65 decline is less than what might be expected from the number of working boats.

**Catch per Effort.** Catch per day and per trip figures were constant in the early sixties, then rose steadily in the mid sixties to reach a new level about twice that of the early sixties value.

**Length of Trip.** The apparent length of trip stayed fairly constant at slightly more than 1½ days. The true average trip length was probably closer to 1 day, with boats leaving port one day and returning the next (recorded as 2 days at sea). The full-time fishermen spend 1 or 2 days at sea, and the part-timers leave port and return on the same day; their combined data gave an average trip length of 1.5-1.8 days.

### Seasonal Trends

Catch and catch per effort were constant during summer, autumn, and winter and then increased by

Fig. 30: Although a variety of vessels are used by snapper long-line fishermen, small launches such as these are the most common. See also Fig. 12.

about 20% in spring. Trip length was slightly shorter in spring and summer, possibly because more part-time boats were working in these seasons.

### Monthly Trends

The fluctuations in catch and catch per effort closely followed those experienced by the Danish seiners, that is, with a main spring peak in October or November. The fluctuations were less pronounced than for seiners, mainly because the line fishermen operate relatively small vessels with limited fish storage capacity, and most land into small wholesale sheds or retail shops, which cannot handle large seasonal increases in landings.

### Size of Vessel and Full-time or Part-time Fishermen

There are no published data on these two points, and they are not readily accessible in the unpublished statistical records; hence they can be considered only in general terms here. Most full-time line fishermen operate 6- to 12-m launches (Fig. 30) and most part-time fishermen use 3- to 6-m dinghies or runabouts, but a considerable overlap is probable. Auckland and other Hauraki Gulf ports have a very large fleet of a wide variety of pleasure craft, many of which are used only intermittently for commercial fishing. There is unlikely to be any clear relationship between size of boat and catch.

Before 1964 the number of line fishing vessels registered at any port bore little relationship to the number fishing; as stated above (page 37) licences were retained as an asset when fishing had ceased. In 1964 registration of line and net vessels dropped sharply presumably to the number which did fish at least occasionally. Subsequently, with permits easy to obtain, the number steadily increased as many amateur fishermen who wished to sell their occasional large catches (mainly of snapper) registered their dinghies, runabouts, and launches as commercial fishing vessels.

Data for 1961 (see Table 18 in the Appendix) illustrate the effects of restrictive licensing and also

the extent of part-time fishing. Only half of the boats registered at Whangarei, Auckland, Thames, and Coromandel fished at all with lines in the Hauraki Gulf during the year (though a few would have fished solely with nets). Of the half which did work, about one-fifth fished full time (10 months or more); over one-third fished for 3 months or less, mainly during summer.

## SET NETTING

The history of set netting in the Hauraki Gulf is very similar to that of long-line fishing. Most netting is done around the shallow margin of the Firth of Thames, with some in the harbours of the south-west Gulf. Because long-lining and set netting are covered by a single fishing permit, the number of set net fishermen cannot be ascertained in the recorded data. Little has been published on set netting alone in the annual *Report on Fisheries*. The catch and effort data are, however, recorded separately from those of line fishing, and annual, seasonal, and monthly trends in the 1960-71 data are discussed below.

### Annual Trends

**Catch.** The annual landings of set net-caught snapper fluctuated, apparently randomly, between 6000 and 9000 cwt from 1960. This was generally 10-17% of the Hauraki Gulf snapper landings, which declined to 6% in 1969-71 as the amount caught by Danish seiners increased.

**Effort.** The number of boats registered at Hauraki Gulf ports to work set nets (most also worked long-lines) reached 320 in 1962 and 1963, declined sharply to 227 in 1964 (probably as a result of the removal of restrictive licensing), then climbed steadily to about 500 in 1970. As with line fishing, most boats fished only part time. The theoretical number of boats which worked full time in the Gulf from 1960 to 1971 was much more constant, varying between 21 and 31. The number of trips and days at sea also fluctuated, apparently randomly, rising slowly from 1965 to 1969 and declining in 1970 and 1971.

**Catch per Effort.** The catch per day and per trip rose slightly towards the mid sixties, fluctuated about a lower level in the late sixties, and then rose again to reach their highest values in 1971.

**Length of Trip.** The apparent length of trip increased slightly from 1.2 to 1.4 days. As discussed under long-lining, this was probably longer than the true length because of some boats leaving port one day and returning the next, so that a 24-hour trip was recorded as 2 days.

### Seasonal Trends

There was a general trend for summer and winter catches and catch per effort to be higher than those in autumn and particularly in spring. Trip length and number of trips per boat stayed constant.

### Monthly Trends

**Catch.** The summer and winter peaks in landings are more clearly shown in the monthly than in the seasonal data (Table 22 in the Appendix). The highest and lowest monthly landings in any one year can differ by a factor of 10. The late summer or early autumn peak usually occurred in March, sometimes in February or April. This was followed by a low from May to July and then a late winter peak in September. In November and December landings dropped to their lowest value for the year. This pattern was remarkably constant during the years 1960-71.

**Effort.** The number of boats fishing declined from May to July and again slightly in November and December. The number of trips and days at sea show similar trends.

**Catch per Effort.** The trends in catch per day and per trip closely followed those of total catch; that is, the highest landings were in February and September and the lowest in May-July and November-December.

### Size of Vessel and Full-time or Part-time Fishermen

Much of the discussion on these two points in the section "Long-lining" also applies here, as most of the vessels concerned were licensed to fish by both methods. There were probably more small boats (under 6 m) fishing with nets than with lines, because the fishing grounds are close in shore and can often be worked from dinghies. Many of these small-boat fishermen worked mainly on flounder* and regarded snapper only as a secondary species that was landed when taken accidentally in flounder nets and was fished for only during the off season for flounder. This pattern of fishing appears to be the chief reason for the considerable monthly variations in snapper catches by set net.

### Interrelationship of the Set Net Fisheries for Snapper and Flounder

Monthly data on the Hauraki Gulf set net fishery for snapper have been discussed above, but those for the flounder fishery are not readily available. However, some idea of the relationship between the

* The category "flounder" in the recorded fisheries statistics comprises two similar species: the yellow-belly flounder, *Rhombosolea leporina*, and dab or sand flounder, *R. plebeia*.

two can be obtained from the published monthly landings of snapper and flounder at Thames (Fig. 31), because set netting was a major, possibly the principal, fishing method at this port at least until 1965, when a Danish seiner started working.

There were distinct seasonal fluctuations in the landings of both species. The main season for flounder extended from November to March or April, and this usually, but not always, coincided with the spring-summer decline in snapper landings. During this time most set net fishing was done on the extensive shallow mud flats around the southern end of the Firth of Thames. The snapper caught there are said by fishermen to be relatively small fish, weighing about 1 lb (about 450 g) and measuring about 25-30 cm.

From May onwards about two-thirds of the fishermen moved out into deeper waters after snapper, and many fished at the "Lake" area at the north-western entrance to the Firth. Most of these fishermen would set their nets differently when fishing specifically for snapper. The decline in snapper landings from May to July was due partly to the onset of winter and the consequent cessation of fishing by the smaller boats and partly to the shift of fishing activity to a deeper area where the major run of snapper is reported not to occur until August-September. These winter snapper, both in the deeper water and on the mud flats, are reported to be larger fish than in the earlier run and to average about 4-5 lb (about 2 kg) and 40-50 cm.

Fishing effort declined slightly in November and December because of the changeover from snapper to flounder fishing and also because the fishermen tried to avoid the sharks (school sharks and larger species) which move into shallow water in these months to bear their young.

There is also some evidence in the seasonal landing figures to support the statements of fishermen that because snapper is a secondary species to flounder, it was not as energetically fished for during or after a good flounder season and vice versa. The 1967 and 1969 declines in snapper landings, for example, correspond to big landings of flounder. Related, perhaps sometimes causal, factors in this regard were the price paid for each species and market requirements in both Thames and Auckland, including quotas for either species during periods of oversupply; information on these points is not readily available.

It is clear that the monthly variations in snapper landings by set net are due to changes in the amount and type of fishing done, as well as to real changes in abundance on the two (shallow and deep) fishing grounds worked. This in-shore fishery is more complex than it first appears, and even the extensive fishing statistics that exist can demonstrate only the more general trends which occur.

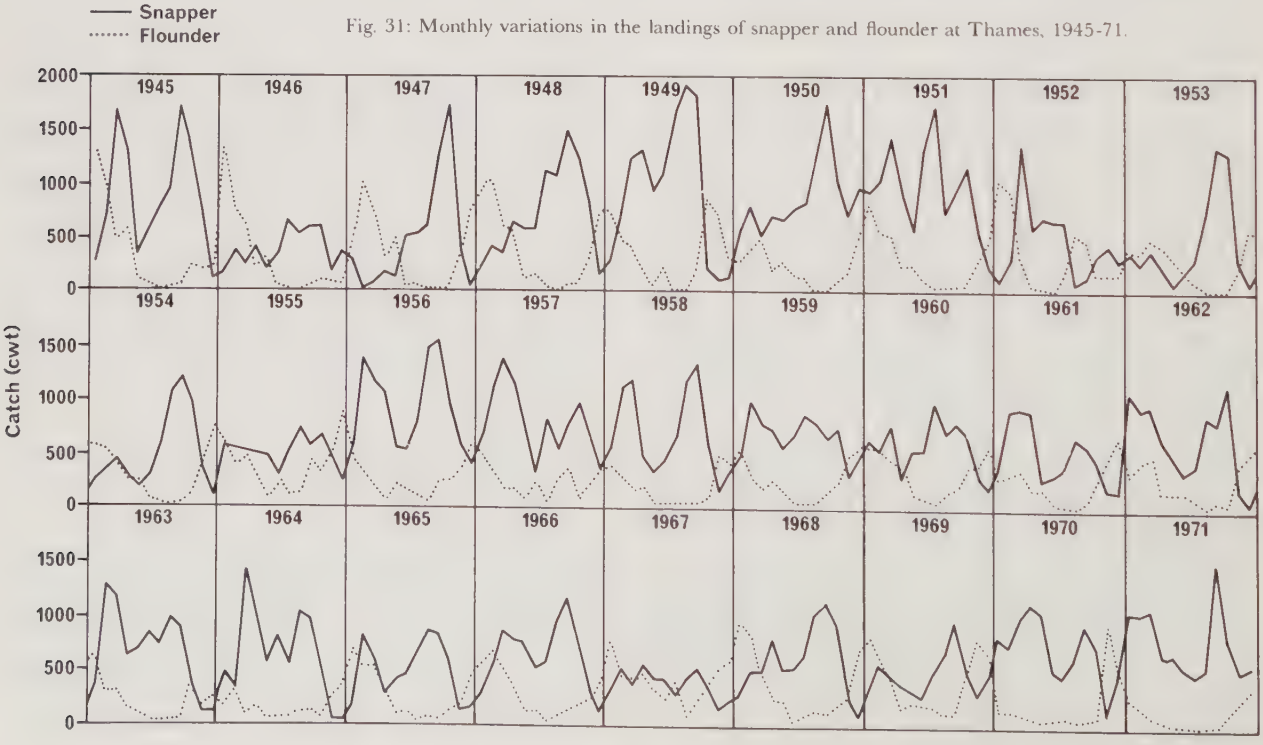



Fig. 31: Monthly variations in the landings of snapper and flounder at Thames, 1945-71.

## RELATIONSHIPS BETWEEN CATCH PER EFFORT IN THE FOUR FISHERIES

### Annual Trends

Trawling, Danish seining, and long-lining all showed a long-term trend towards increasing catch and catch per effort up to a peak about 1968 (see Tables 11 and 21 in the Appendix). Trawling and Danish seining both declined temporarily in the early to mid sixties, particularly in 1961 and 1965, but there is no clear correlation between them. The main increase in landings came in 1967 for trawl fishermen and in 1968 for Danish seiners. Both trawling and Danish seining very slightly declined in catch per effort from a peak in 1968. Long-lining increased steadily in catch and catch per effort from the mid sixties; a peak in all measures of catch per effort occurred in 1968, followed by a slight and fluctuating decline.

Catches from set netting, on the other hand, fluctuated irregularly during the sixties and appear to be related to, and possibly caused by, fluctuations in the set net fishery for flounder.

The catch per effort evidence thus indicates an increase in snapper abundance or availability in the Hauraki Gulf during the late sixties; this reached a peak about 1968 and then declined slightly in 1969-71. The peak occurred on the trawling grounds in the central and outer Gulf in 1967 and on the Danish seining and line fishing grounds, closer in shore, in 1968.

### Seasonal and Monthly Trends

For reasons discussed above there were no clear seasonal or monthly fluctuations in the trawl landings of snapper, except for a small peak in spring (October, November, or December and sometimes earlier) in some years. This peak usually corresponded with, or was slightly earlier than, the much more pronounced spring peak in Danish seine catches and the small peak in long-line catches. Catch per effort figures followed the total snapper landing trends very closely. The early spring rise in trawl catches must result from an increased abundance, or at least availability, of snapper on the central and outer Gulf grounds. These fish might have moved off shore from the shallow Gulf, as indicated below, or they might have been moving into the Gulf from adjacent coastal areas to spawn. Because trawlers generally fish more open waters than do seiners, the simultaneous rise in catches by both methods could suggest a movement either into or out of the Gulf. Set net catches, made much closer in shore, are difficult to interpret because they are interrelated with flounder catches, but the sharp decline from October to January coincided with the peak in landings from the Danish seine grounds. Much of this decline was due to a shift in emphasis to flounder fishing, but it may also have been due to a movement of snapper away from the coast to spawn in open water. The rise in set net snapper catches during summer corresponded to a decline in landings from Danish seiners and long-liners, and though this increase was partly due to a return of fishermen to snapper fishing, it could also indicate a return of the snapper to shallow water to feed during late summer and autumn. The statistical data on the set net fishery cannot separate the effort spent on snapper fishing from that on flounder fishing, and the above suggestions of off-shore and in-shore migrations before and after the spawning season must remain only tentative.

Although the preceding outline of the relationship between trends in the different fisheries for snapper, and movements of the fish within the Hauraki Gulf, can lead to few firm conclusions, it does suggest that more adequate fisheries statistics, with emphasis on fishing effort and smaller fishing areas, would not only benefit the management of this complex fishery, but would help to clarify the important seasonal migrations and longer-term changes in abundance of snapper in the Hauraki Gulf.

# CONCLUSIONS

One of the main purposes of this study was to determine whether any of the recorded fluctuations in landings of Hauraki Gulf snapper into Auckland were caused by changes in the abundance of snapper rather than by changes in fishing operations initiated by the fishing industry itself.

Most of the fluctuations in snapper landings are due to recorded changes in the industry, but there are two events which cannot be entirely explained by these changes and which might be related to variations in snapper abundance.

The first is the decline in Auckland snapper landings about 1950. This could have been due to either or both of two aspects of snapper abundance: a change in the availability of snapper through environmental changes such as climatic conditions and water currents, or a real change in abundance because of a lowered standing stock and/or lowered recruitment. There is no recorded evidence for a significant climatic change about 1950, but the possibility that a subtle change in hydrological conditions altered the snapper's normal distribution pattern cannot be ruled out. Likewise, there is no good evidence for a lowered standing stock, but the decline in landings did follow a period of renewed heavy fishing by large steam trawlers, as well as by a large fleet of Danish seiners, after the Second World War, which undoubtedly made heavy inroads into the stock.

There are no data on the level of recruitment into the stock during the forties, but there is some indirect evidence that it may have been low. It is shown elsewhere (Paul 1976) that year class strength is related to climatic conditions (and presumably inshore water temperatures) during the November-December spawning season, with warmer than average temperatures producing strong year classes. Spawning season temperatures during the forties were much colder than average, with the exception of 1943. If these cold seasons did produce poor year classes, there would have been low recruitment during the forties culminating in a general decrease in abundance about the end of the decade. Abundance did diminish, but whether or not it resulted from poor recruitment cannot now be determined.

The second event which might be explained by a change in snapper abundance is the increase in snapper catch and catch per effort in the late sixties. There is some evidence for the production of several strong year classes during the sixties, mainly in 1960, 1962, and 1968, resulting from spawning seasons when the air temperatures were warmer than average. These strong year classes should theoretically have influenced landings in the late sixties, and samples taken from the commercial catch did show that they were strongly represented (Paul 1970, 1974, 1976).

If the suggested relationships between warm temperatures and strong year classes, and strong year classes and increased commercial landings, are correct, an examination of the climatological information for the Hauraki Gulf area will give an early indication of future trends in abundance of snapper. After the warm spawning season that produced the strong 1968 year class, the 1969 spawning season (spring 1968) was cold, and recent trawling surveys show it to have produced a poor year class. However, almost every month of 1970 and 1971 was warmer than average, which suggests that these two year classes may be good ones.

Total landings of snapper into Auckland, mainly from the Hauraki Gulf, returned to the 1936 and 1948 peak levels in 1968 and have continued to rise. The decline from the 1936 peak resulted from economic factors, but the post-1948 decline may have been caused by poor recruitment and subsequent overfishing of the stock. If the big catches made in 1968 and subsequent years have likewise overfished the stock, they may result in a similar decline. But recent work (Paul 1974, 1976) shows that spawning, recruitment, and the age composition of the commercial catch are variable and also indicates that rather more strong year classes have been produced during recent years. A sudden and permanent decline in catches is thus unlikely, but fluctuations in catch and catch per effort are obviously inevitable.

# SUMMARY


The Hauraki Gulf is the most important fishing ground for snapper, *Chrysophrys auratus* (Forster), in New Zealand, with Auckland the most important port. Most snapper in the Gulf are caught by trawling or Danish seining, but there are also significant long-line and set net fisheries. The Auckland snapper fishery is complex and has undergone considerable change since 1900. Recorded landings of snapper have fluctuated widely.

This study examined the known trends in snapper landings to determine whether they were all caused by economic factors within the fishing industry or whether some might be the result of real changes in the abundance of snapper.

Hand-lining, long-lining, beach seining, and set netting were the main fishing methods until 1915. Steam trawling began in that year and Danish seining in 1923. Catches fell briefly during the economic depression in the early thirties, but recovered as an export market to Australia was developed, and they reached a peak in 1936. Catches then fell as the export market became unprofitable, dropping even more sharply when the steam trawlers were taken for naval duties at the start of the Second World War. The catch improved again after the war largely because of the return of steam trawlers to fishing; the catch and catch per effort of the Danish seiner fleet remained steady.

Steam trawlers became uneconomic and ceased fishing in 1951. Danish seiners also had economic difficulties about this time, with rising costs and apparently falling catches, and most of them converted to trawling or long-lining or ceased fishing. New motor trawlers were built, and from 1950 to 1968 motor trawling was the chief fishing method for snapper in the Gulf. Snapper landings into Auckland dropped strikingly from 1948 to 1953, reaching their lowest level since the early thirties. Some of the decline was caused by the loss of steam trawlers, conversion of seiners to motor trawlers, increased fishing on the west coast, and increased emphasis on fishing for tarakihi; some was also due to a decrease in snapper abundance.

The fishing grounds worked by Auckland-based trawlers extend around the northern half of the North Island, from New Plymouth to Mahia Peninsula. This wide coverage partly results from the progressive closing of most in-shore fishing grounds in the Hauraki Gulf, east Northland, and Bay of Plenty to trawling and Danish seining. From 1952 onwards Auckland-based trawlers landed their west coast catches into the port of Manukau.

Snapper landings into Auckland and Manukau rose steadily from 1952 until 1967. There was a sudden rise in landings from the Hauraki Gulf in 1968, mainly because of a doubling in catch per effort by Danish seiners. Fishing effort increased in subsequent years, maintaining the rise in total catch, but catch per effort by all fishing methods remained steady or fell slightly. Danish seining became the principal fishing method in 1969, and very large catches of "school snapper" were taken by this method during the spring spawning season.

Many of the fluctuations in the recorded landings of Hauraki Gulf snapper can be attributed to economic factors within the industry. Declines in landings were accompanied by changes in fishing effort which are difficult, and usually impossible, to quantify, and it is also difficult to determine whether these changes in effort precede, coincide with, or follow the declines in landings. Two events, however, were influenced by changes in snapper abundance as well as by changes in effort.

The decline in snapper landings from 1948 to 1953 was accompanied by a decline in catch per effort. This followed several years of heavy fishing by steam trawlers immediately after the Second World War, and there is indirect evidence that recruitment to the stock was low during the forties.

The higher catch per effort in 1968, which dropped only slightly in subsequent years, can be attributed to the presence of several strong year classes in the Hauraki Gulf snapper stocks.

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# APPENDIX

## STATISTICAL DATA

Before 1946 there was some variation in the number and grouping of ports in the presentation of data on number of registered fishing vessels and quantities of each species landed. There were frequently variations between different tables within the same *Report on Fisheries* or *Marine Department Annual Report*. To avoid extensive annotation of the tables in this Appendix, these variations are set out below.

Whangarei was always listed separately.

Omissions, for example, of Manukau and Coromandel, presumably mean that these ports were combined with Auckland.

| Year | Groupings of ports for vessels registered | Groupings of ports for fish landings by species |
|---|---|---|
| 1915 | Auckland, Thames | Auckland, Thames |
| 1916 | Auckland, Thames | Auckland, Thames |
| 1917 | Auckland, Thames | Auckland |
| 1918 | Auckland, Thames | Auckland, Thames |
| 1919 | Auckland, Thames | Auckland, Thames |
| 1920 | Auckland, Thames | Auckland, Thames |
| 1921 | Auckland, Thames | Auckland, Thames |
| 1922 | Auckland, Thames | Auckland, Thames |
| 1923 | Auckland, Thames, Coromandel, and Manukau combined | Auckland, Thames |
| 1924 | Auckland, Thames, Coromandel, and Manukau combined | Auckland, Thames, Manukau, and Coromandel combined |
| 1925 | Auckland, Thames, Coromandel, and Manukau combined | Auckland district |
| 1926 | Auckland, Thames, Coromandel, and Manukau combined | Auckland district |
| 1927 | Auckland, Manukau, Mercury Bay, and Coromandel combined, Thames | Auckland, Thames |
| 1928 | Auckland, Manukau, Mercury Bay, and Coromandel combined, Thames | Auckland, Thames |
| 1929 | Auckland, Manukau, Mercury Bay, and Coromandel combined, Thames | Auckland, Manukau, and Coromandel combined, Thames, Mercury Bay |
| 1930 | Auckland, Manukau, Mercury Bay, and Coromandel combined, Thames | Auckland, Manukau, and Coromandel combined, Thames, Mercury Bay |
| 1931 | Auckland, Thames, Mercury Bay | Auckland, Manukau, and Coromandel combined, Thames, Mercury Bay |
| 1932 | Auckland, Thames, Mercury Bay | Auckland, Manukau, and Coromandel combined, Thames, Mercury Bay |
| 1933 | Auckland, Thames, Mercury Bay | Auckland, Manukau, and Coromandel combined, Thames, Mercury Bay |
| 1934 | Auckland and Coromandel combined, Thames, Mercury Bay | Auckland, Manukau, and Coromandel combined, Thames, Mercury Bay |
| 1935 | Auckland and Coromandel combined, Thames, Mercury Bay | Auckland, Manukau, and Coromandel combined, Thames, Mercury Bay |
| 1936 | Auckland, Manukau, and Coromandel combined, Thames, Mercury Bay | Auckland, Manukau, and Coromandel combined, Thames, Mercury Bay |
| 1937 | Auckland, Manukau, and Coromandel combined, Thames, Mercury Bay | Auckland, Manukau, and Coromandel combined, Thames, Mercury Bay |
| 1938 | Auckland, Manukau, and Coromandel combined, Thames, Mercury Bay | Auckland, Manukau, and Coromandel combined, Thames, Mercury Bay |
| 1939 | Auckland, Manukau, Coromandel, Thames, Mercury Bay | Auckland, Coromandel, Thames, Mercury Bay |
| 1940 | Auckland, Manukau, Coromandel, Thames, Mercury Bay | Auckland, Thames, Mercury Bay |
| 1941 | Auckland, Manukau, Coromandel, Thames, Mercury Bay | Auckland, Thames, Mercury Bay |
| 1942 | Auckland, Manukau, Coromandel, Thames, Mercury Bay | Auckland, Thames, Mercury Bay |
| 1943 | Auckland, Manukau, Coromandel, Thames, Mercury Bay | Auckland, Thames, Mercury Bay |
| 1944 | Auckland, Manukau, Coromandel, Thames, Mercury Bay | Auckland, Manukau, Thames |
| 1945 | Auckland, Manukau, Coromandel, Thames, Mercury Bay | Auckland, Manukau, Thames |
| 1946 | Auckland, Manukau, Coromandel, Thames, Mercury Bay | Auckland, Manukau, Coromandel, Thames, Mercury Bay |

All fish landed weights in the tables are of whole (unprocessed) fish. The quantities shown are in hundredweight and are comparable with those in Paul (1974). The use of metric units in the New Zealand fishing industry was adopted in 1974.

The data for the years before 1944 are for April-March years and are listed here for the first year; for example, the total for April 1943 to March 1944 is listed as the 1943 total. The data for 1944 and subsequent years are for calendar years.

Owing to variations in recording and presentation of various totals in the *Report on Fisheries,* the data for the years before 1944 are incomplete.

**TABLE 1: Commercial fish landings, by fishing method, of all species at Auckland, 1936-59**

| Year | Steam trawl | Motor trawl | Danish seine | Lines | Nets | Total |
|---|---|---|---|---|---|---|
| 1936 | 54 200* | 0 | 97 200* | 3 800* | 3 500* | 159 371 |
| 1937 | 31 950* | 0 | 101 500* | —† | — | 140 234 |
| 1938 | 41 300* | 0 | 105 350* | 2 550* | 1 500* | 150 730 |
| 1939 | 19 100* | 0 | 113 900* | 3 700* | 1 500* | 138 249‡ |
| 1940 | 0 | 0 | 117 450* | — | — | 125 220 |
| 1941 | 0 | 0 | — | — | — | 119 583 |
| 1942 | 0 | 0 | — | — | — | 105 106 |
| 1943 | 0 | 0 | — | — | — | 103 882‡ |
| 1944 | 1 929 | 0 | 105 376 | 1 409 | 2 303 | 111 078 |
| 1945 | 19 553 | 0 | 97 608 | 2 493 | 3 092 | 122 789 |
| 1946 | 36 964 | 172 | 96 990 | 3 097 | 4 125 | 141 406 |
| 1947 | 45 309 | 39 | 90 824 | 2 998 | 3 050 | 142 304 |
| 1948 | 41 982 | 8 637 | 86 191 | 4 287 | 1 580 | 142 766 |
| 1949 | 35 710 | 24 756 | 65 198 | 5 354 | 2 028 | 133 169 |
| 1950 | 26 122 | 43 785 | 42 758 | 8 802 | 1 467 | 122 934 |
| 1951 | 7 401 | 63 212 | 27 723 | 10 998 | 2 065 | 111 399 |
| 1952 | 0 | 75 190 | 25 976 | 8 714 | 2 746 | 112 626 |
| 1953 | 0 | 68 537 | 27 291 | 8 889 | 3 116 | 107 833 |
| 1954 | 0 | 79 367 | 22 375 | 8 249 | 3 654 | 113 645 |
| 1955 | 0 | 77 499 | 23 425 | 9 044 | 3 563 | 113 531 |
| 1956 | 0 | 66 204 | 25 676 | 7 336 | 3 384 | 102 600 |
| 1957 | 0 | 72 433 | 30 925 | 8 530 | 5 142 | 116 400 |
| 1958 | 0 | 77 418 | 27 743 | 6 751 | 3 271 | 115 183 |
| 1959 | 0 | 89 083 | 31 755 | 7 573 | 3 135 | 131 546 |

* Data not recorded, but calculated to the nearest 50 cwt from listed percentage values of total landings.
† A dash indicates that data were not recorded.
‡ Minor discrepancies in different versions of original tables.

**TABLE 2: Commercial snapper landings, by fishing method, at Auckland, 1936-59**

| Year | Steam trawl | Motor trawl | Danish seine | Lines and nets | Recorded total* |
|---|---|---|---|---|---|
| 1936 | 18 100† | 0 | 72 900‡ | 3 600§ | 112 656 |
| 1937 | 10 700† | 0 | 76 100‡ | —‖ | 97 296 |
| 1938 | 13 800† | 0 | 79 000‡ | 2 000§ | 107 252 |
| 1939 | 6 400† | 0 | 85 400‡ | 2 600§ | 100 764 |
| 1940 | 0 | 0 | 88 100‡ | — | 91 342 |
| 1941 | 0 | 0 | — | — | 87 028 |
| 1942 | 0 | 0 | — | — | 73 604 |
| 1943 | 0 | 0 | — | — | 75 153 |
| 1944 | 600† | 0 | 78 000¶ | 1 900§ | 79 844 |
| 1945 | 8 063 | 0 | 72 179 | 2 800§ | 81 706 |
| 1946 | 20 440 | 100** | 70 964 | 3 600§ | 93 792 |
| 1947 | 15 100† | 0 | 67 757 | 3 000§ | 101 470 |
| 1948 | 14 000† | 4 300** | 69 548 | 2 900§ | 110 911 |
| 1949 | 11 900† | 12 400** | 54 011†† | 3 700§ | 92 262 |
| 1950 | 8 700† | 21 900** | 34 513†† | 5 100§ | 75 291 |
| 1951 | 2 500† | 31 600** | 23 432†† | 6 500§ | 62 518 |
| 1952 | 0 | 37 600** | 20 125†† | 5 700§ | 59 815 |
| 1953 | 0 | 34 300** | 20 003†† | 6 000§ | 56 648 |
| 1954 | 0 | 39 700** | 16 383†† | 6 000§ | 63 507 |
| 1955 | 0 | 38 700** | 16 740†† | 6 300§ | 60 874 |
| 1956 | 0 | 33 100** | 21 000†† | 5 400§ | 62 545 |
| 1957 | 0 | 36 200** | 26 630†† | 6 800§ | 74 910 |
| 1958 | 0 | 38 700** | 24 800†† | 5 000§ | 74 339 |
| 1959 | 0 | 44 500** | 28 035†† | 5 400§ | 83 110 |

* Recorded totals do not equal sum of calculated subtotals.
† Data not recorded, but calculated as one-third of recorded total steam trawl landings (Table 1) from relationship in 1945 and 1946 and rounded to nearest 100 cwt.
‡ Data not recorded, but calculated as three-quarters of recorded total Danish seine landings (Table 1) from relationship in 1944-48 and rounded to nearest 100 cwt.
§ Data not recorded, but calculated as one-half of total recorded line and net landings (Table 1) from relationship at Thames, 1946-64, and rounded to nearest 100 cwt.
‖ A dash indicates that data were not recorded.
¶ Data not recorded, but calculated to nearest 50 cwt from listed percentage values of total landings.
** Data not recorded, but calculated as one-half of recorded total motor trawl landings from relationship in 1952-59 and rounded to nearest 100 cwt.
†† New Zealand Danish seine snapper landings; Danish seiners were registered only at Auckland in these years.

TABLE 3: Commercial landings of snapper, tarakihi, gurnard, and trevally and total landings of all fish species at Auckland, 1915-71

| Year | Snapper | Tarakihi | Gurnard | Trevally | All species |
|---|---|---|---|---|---|
| 1915 | —* | — | — | — | 110 000† |
| 1916 | — | — | — | — | 68 580 |
| 1917 | — | — | — | — | 91 600‡ |
| 1918 | — | — | — | — | 74 232 |
| 1919 | — | — | — | — | 63 400 |
| 1920 | — | — | — | — | 68 560 |
| 1921 | — | — | — | — | 65 700 |
| 1922 | — | — | — | — | 65 500 |
| 1923 | — | — | — | — | 106 783 |
| 1924 | — | — | — | — | 107 600‡ |
| 1925 | — | — | — | — | 127 700‡ |
| 1926 | — | — | — | — | 96 100‡ |
| 1927 | — | — | — | — | 134 040 |
| 1928 | — | — | — | — | 83 040 |
| 1929 | — | — | — | — | 95 760 |
| 1930 | 59 223§ | — | — | — | 104 098 |
| 1931 | 43 102 | 23 652 | 101 | 52 | 83 753 |
| 1932 | 49 657 | 11 933 | 0 | 0 | 82 758 |
| 1933 | 60 540 | 10 766 | 413 | 600 | 89 660 |
| 1934 | 68 432 | 14 293 | 505 | 578 | 100 999 |
| 1935 | 88 374 | 18 100 | 766 | — | 129 209 |
| 1936 | 112 656 | 24 966 | 1 694 | — | 159 371 |
| 1937 | 97 296 | 24 240 | 3 028 | 401 | 140 234 |
| 1938 | 107 252 | 22 530 | 1 353 | 841 | 150 730 |
| 1939 | 100 764‖ | 20 981 | 1 563 | 279 | 138 249‖ |
| 1940 | 91 342‖ | 13 185 | 1 639 | 144 | 125 220 |
| 1941 | 87 028 | 12 882 | 1 375 | 157 | 119 583 |
| 1942 | 73 604 | 16 470 | 1 447 | 127 | 105 106 |
| 1943 | 75 153 | 12 128 | 1 361 | 36 | 103 882 |
| 1944 | 79 844 | 18 289 | 3 206 | 2 915 | 111 078 |
| 1945 | 81 706 | 23 965 | 5 570 | 3 297 | 122 789 |
| 1946 | 93 792 | 27 788 | 7 370 | 2 015 | 141 406 |
| 1947 | 101 470 | 22 285 | 6 199 | 2 293 | 142 304 |
| 1948 | 110 911 | 17 031 | 5 139 | 4 631 | 142 766 |
| 1949 | 92 262 | 22 604 | 5 949 | 5 397 | 133 169 |
| 1950 | 75 291 | 30 680 | 4 686 | 6 966 | 122 934 |
| 1951 | 62 518 | 33 831 | 2 489 | 7 936 | 111 399 |
| 1952 | 59 815 | 36 082 | 5 683 | 5 344 | 112 626 |
| 1953 | 56 648 | 32 345 | 6 210 | 5 354 | 107 833 |
| 1954 | 63 507 | 29 385 | 5 675 | 6 985 | 113 645 |
| 1955 | 60 874 | 30 873 | 5 376 | 8 773 | 113 531 |
| 1956 | 62 545 | 21 820 | 3 191 | 8 252 | 102 600 |
| 1957 | 74 910 | 18 563 | 3 871 | 11 944 | 116 400 |
| 1958 | 74 339 | 15 379 | 4 561 | 12 591 | 115 183 |
| 1959 | 83 110 | 21 212 | 4 596 | 15 056 | 131 546 |
| 1960 | 82 999 | 16 851 | 3 699 | 17 281 | 127 299 |
| 1961 | 78 266 | 16 955 | 4 268 | 17 472 | 124 424 |
| 1962 | 80 926 | 11 549 | 4 045 | 22 397 | 125 283 |
| 1963 | 84 216 | 13 270 | 4 637 | 19 297 | 128 216 |
| 1964 | 86 052 | 9 967 | 9 854 | 19 817 | 133 424 |
| 1965 | 92 256 | 10 453 | 11 512 | 23 139 | 146 479 |
| 1966 | 92 289 | 6 800 | 8 049 | 18 231 | 132 872 |
| 1967 | 96 727 | 4 436 | 6 463 | 14 200 | 128 455 |
| 1968 | 112 398 | 6 522 | 6 327 | 17 420 | 149 766 |
| 1969 | 129 111 | 4 205 | 6 626 | 15 264 | 163 182 |
| 1970 | 123 641 | 5 821 | 7 404 | 15 466 | 161 021 |
| 1971 | 144 737 | 4 958 | 6 401 | 18 961 | 184 095 |

* A dash indicates that data were not recorded.
† Estimated from combined Auckland, Russell, and Hokianga values.
‡ Data not recorded, but calculated as 80% of combined Auckland-Thames value from relationship in 1918-23 and 1927 and rounded to nearest 50 cwt. The 1915-27 data are from Hefford (1929).
§ Value obtained from *Report on Fisheries* for 1934-35.
‖ Minor discrepancies in different versions of original tables.

TABLE 4: Commercial fish landings, by fishing method, at Manukau, 1939-59

| Year | Motor trawl | Lines | Nets | Lines and nets | Total |
|---|---|---|---|---|---|
| 1939* | 0 | —† | — | 2 313‡ | 2 313 |
| 1940 | 0 | — | — | 2 558 | 2 558 |
| 1941 | 0 | — | — | 1 568 | 1 568 |
| 1942 | 0 | — | — | 2 254 | 2 254 |
| 1943 | 0 | — | — | 1 870 | 1 870 |
| 1944 | 0 | — | — | 1 118 | 1 118 |
| 1945 | 0 | — | — | 1 229 | 1 229 |
| 1946 | 0 | — | — | 1 215 | 1 215 |
| 1947 | 0 | — | — | 1 401 | 1 401 |
| 1948 | 0 | 156 | 730 | 886§ | 886§ |
| 1949 | 0 | 267 | 779 | 1 046 | 1 046 |
| 1950 | 0 | 204 | 538 | 742 | 742 |
| 1951 | 0 | 117 | 796 | 913 | 913 |
| 1952 | 1 359 | 129 | 971 | 1 100 | 2 459 |
| 1953 | 24 048 | 112 | 1 106 | 1 218 | 25 266 |
| 1954 | 18 645 | 282 | 1 491 | 1 773 | 20 418 |
| 1955 | 24 160 | 301 | 1 164 | 1 465 | 25 625 |
| 1956 | 25 985 | 451 | 1 279 | 1 730 | 27 715 |
| 1957 | 32 349 | 299 | 1 179 | 1 478 | 33 827 |
| 1958 | 22 617 | 134 | 1 941 | 2 075 | 24 692 |
| 1959 | 22 497 | 295 | 2 110 | 2 405 | 24 902 |

* Before 1939 Manukau landings were combined with those of Auckland.
† A dash indicates that data were not recorded.
‡ 1939-47 data were not listed by method, but are inferred to be lines and nets.
§ Minor discrepancies in different versions of original tables.

**TABLE 5: Commercial landings of snapper and tarakihi and total landings of all fish species at Auckland and Auckland and Manukau combined, 1936-71 (steam trawlers excepted)**

| | Auckland | | | Auckland-Manukau combined | | |
|---|---|---|---|---|---|---|
| Year | Snapper | Tarakihi | All species | Snapper | Tarakihi | All species |
| 1936 | 94 600* | 6 900† | 105 150‡ | 94 600* | 6 900† | 105 150‡ |
| 1937 | 86 600* | 13 600† | 108 300‡ | 86 600* | 13 600† | 108 300‡ |
| 1938 | 93 500* | 8 800† | 109 450‡ | 93 500* | 8 800† | 109 450‡ |
| 1939 | 94 400* | 14 600† | 119 150‡ | 94 400*§ | 14 600†§ | 121 450‡ |
| 1940 | 91 342 | 13 185 | 125 200 | 91 342§ | 13 185§ | 127 778 |
| 1941 | 87 028 | 12 882 | 119 583 | 87 028§ | 12 882§ | 121 151 |
| 1942 | 73 604 | 16 470 | 105 106 | 73 604§ | 16 470§ | 107 360 |
| 1943 | 75 153 | 12 128 | 103 882 | 75 153§ | 12 128§ | 105 752 |
| 1944 | 79 200* | 17 600† | 109 150‡ | 79 500* | 17 600† | 110 250‡ |
| 1945 | 73 643 | 17 400† | 103 250‡ | 73 815 | 17 400† | 104 450‡ |
| 1946 | 73 352 | 15 500† | 104 450‡ | 73 537 | 15 500† | 105 650‡ |
| 1947 | 86 400* | 7 200† | 97 000‡ | 86 900* | 7 200† | 98 400‡ |
| 1948 | 96 900* | 3 000† | 100 800‡ | 97 100* | 3 000† | 101 650‡ |
| 1949 | 80 400* | 10 700† | 97 450‡ | 80 700* | 10 700† | 98 500‡ |
| 1950 | 66 600* | 22 000† | 96 800‡ | 66 800* | 22 000† | 97 550‡ |
| 1951 | 60 000* | 31 400† | 104 000‡ | 60 200* | 31 400† | 104 900‡ |
| 1952 | 59 815 | 36 082 | 112 626 | 61 055 | 36 085 | 115 085 |
| 1953 | 56 648 | 32 345 | 107 833 | 74 051 | 35 155 | 133 099 |
| 1954 | 63 507 | 29 385 | 113 645 | 78 204 | 29 706 | 134 063 |
| 1955 | 60 874 | 30 873 | 113 531 | 75 643 | 34 995 | 139 156 |
| 1956 | 62 545 | 21 820 | 102 600 | 77 012 | 27 360 | 130 315 |
| 1957 | 74 910 | 18 563 | 116 400 | 95 213 | 22 139 | 150 227 |
| 1958 | 74 339 | 15 379 | 115 183 | 84 934 | 19 554 | 139 875 |
| 1959 | 83 110 | 21 212 | 131 546 | 95 174 | 24 805 | 156 448 |
| 1960 | 82 999 | 16 851 | 127 299 | 98 474 | 19 975 | 161 720 |
| 1961 | 78 266 | 16 955 | 124 424 | 94 971 | 19 974 | 159 882 |
| 1962 | 80 926 | 11 549 | 125 283 | 98 411 | 14 460 | 161 131 |
| 1963 | 84 216 | 13 270 | 128 216 | 102 176 | 17 517 | 169 050 |
| 1964 | 86 052 | 9 967 | 133 424 | 101 256 | 12 625 | 169 180 |
| 1965 | 92 256 | 10 453 | 146 479 | 103 810 | 11 559 | 172 592 |
| 1966 | 92 289 | 6 800 | 132 872 | 115 393 | 8 483 | 184 469 |
| 1967 | 96 727 | 4 436 | 128 455 | 112 506 | 7 333 | 174 439 |
| 1968 | 112 398 | 6 522 | 149 766 | 132 168 | 8 013 | 201 486 |
| 1969 | 129 111 | 4 205 | 163 182 | 148 410 | 5 744 | 221 792 |
| 1970 | 123 641 | 5 821 | 161 021 | 143 488 | 9 880 | 227 608 |
| 1971 | 144 737 | 4 958 | 184 095 | 169 891 | 9 597 | 256 969 |

* Values rounded to nearest 100 cwt, because Auckland snapper landings by steam trawler (Table 2) were calculated, not recorded.
† Values rounded to nearest 100 cwt, because Auckland tarakihi landings by steam trawler were not recorded, but calculated as one-third of the total steam trawler landings (Table 1) from relationship in 1945 and 1946.
‡ Values rounded to nearest 50 cwt, because some subtotals have been calculated or estimated.
§ 1939-43 Manukau values either were not recorded or were listed with those of Auckland; original data are ambiguous. The landings for these years were small and would include only about 200 cwt of snapper.

**TABLE 6: Commercial landings of snapper, tarakihi, gurnard, and trevally and total landings of all fish species at Manukau, 1939-71**

| Year | Snapper | Tarakihi | Gurnard | Trevally | All species |
|---|---|---|---|---|---|
| 1939* | —† | — | — | — | 2 313 |
| 1940 | — | — | — | — | 2 558 |
| 1941 | — | — | — | — | 1 568 |
| 1942 | — | — | — | — | 2 254 |
| 1943 | — | — | — | — | 1 870 |
| 1944 | 274 | 0 | 0 | 58 | 1 118 |
| 1945 | 172 | 0 | 7 | 22 | 1 229 |
| 1946 | 185 | 0 | 2 | 12 | 1 215 |
| 1947 | 490 | 0 | 0 | 5 | 1 401 |
| 1948 | 173 | 0 | 2 | 4 | 902 |
| 1949 | 274 | 0 | 0 | 1 | 1 046 |
| 1950 | 225 | 0 | 8 | 13 | 742 |
| 1951 | 180 | 0 | 9 | 47 | 913 |
| 1952 | 1 240 | 3 | 132 | 177 | 2 459 |
| 1953 | 17 403 | 2 810 | 1 627 | 1 649 | 25 266 |
| 1954 | 14 697 | 321 | 2 092 | 1 185 | 20 418 |
| 1955 | 14 769 | 4 122 | 2 483 | 2 290 | 25 625 |
| 1956 | 14 467 | 5 540 | 3 420 | 1 694 | 27 715 |
| 1957 | 20 303 | 3 576 | 3 441 | 3 675 | 33 827 |
| 1958 | 10 595 | 4 175 | 2 201 | 4 411 | 24 692 |
| 1959 | 12 064 | 3 593 | 2 069 | 3 847 | 24 902 |
| 1960 | 15 475 | 3 124 | 3 930 | 8 399 | 34 421 |
| 1961 | 16 705 | 3 019 | 5 009 | 6 646 | 35 458 |
| 1962 | 17 485 | 2 911 | 3 964 | 7 694 | 35 848 |
| 1963 | 17 960 | 4 247 | 4 922 | 10 240 | 40 834 |
| 1964 | 15 204 | 2 658 | 6 234 | 8 372 | 35 756 |
| 1965 | 11 554 | 1 106 | 4 350 | 6 648 | 26 113 |
| 1966 | 23 104 | 1 683 | 10 763 | 12 061 | 51 597 |
| 1967 | 15 779 | 2 897 | 10 366 | 11 777 | 45 984 |
| 1968 | 19 770 | 1 491 | 12 308 | 13 063 | 51 720 |
| 1969 | 19 299 | 1 539 | 15 187 | 17 266 | 58 610 |
| 1970 | 19 847 | 4 059 | 15 851 | 19 476 | 66 587 |
| 1971 | 25 154 | 4 639 | 12 735 | 22 576 | 72 874 |

* Before 1939 Manukau landings were combined with those of Auckland.
† A dash indicates that data were not recorded.

**TABLE 7: Commercial fish landings, by fishing method, of all species at Auckland and Manukau combined, 1936-59**

| Year | Steam trawl | Motor trawl | Danish seine | Lines | Nets | Lines and nets | All methods except steam trawlers* | Recorded total |
|---|---|---|---|---|---|---|---|---|
| 1936 | 54 200† | 0 | 97 200† | —‡ | — | 7 300§ | 105 150 | 159 371 |
| 1937 | 31 950† | 0 | 101 500† | — | — | 5 500§ | 108 300 | 140 234 |
| 1938 | 41 300† | 0 | 105 350† | — | — | 4 050§ | 109 450 | 150 730 |
| 1939 | 19 100† | 0 | 113 900† | — | — | 6 300‖ | 121 450 | 140 562 |
| 1940 | 0 | 0 | 117 450† | — | — | 6 600‖ | 127 800 | 127 778 |
| 1941 | 0 | 0 | 115 500¶ | — | — | 5 600‖ | 121 150 | 121 151 |
| 1942 | 0 | 0 | 101 000¶ | — | — | 6 300‖ | 107 350 | 107 360 |
| 1943 | 0 | 0 | 100 000¶ | — | — | 5 900‖ | 105 750 | 105 752 |
| 1944 | 1 929 | 0 | 105 376 | — | — | 4 830 | 110 250 | 112 196 |
| 1945 | 19 553 | 0 | 97 608 | — | — | 6 814 | 104 450 | 124 018 |
| 1946 | 36 964 | 172 | 96 990 | — | — | 8 437 | 105 650 | 142 621 |
| 1947 | 45 309 | 39 | 90 824 | — | — | 7 449 | 98 400 | 143 705 |
| 1948 | 41 982 | 8 637 | 86 191 | 4 443 | 2 310 | 6 753 | 101 650 | 143 652 |
| 1949 | 35 710 | 24 756 | 65 198 | 5 621 | 2 807 | 8 428 | 98 500 | 134 215 |
| 1950 | 26 122 | 43 785 | 42 758 | 9 006 | 2 005 | 11 011 | 97 550 | 123 676 |
| 1951 | 7 401 | 63 212 | 27 723 | 11 115 | 2 861 | 13 976 | 104 900 | 112 312 |
| 1952 | 0 | 76 549 | 25 976 | 8 843 | 3 717 | 12 560 | 115 085 | 115 085 |
| 1953 | 0 | 92 585 | 27 291 | 9 001 | 4 222 | 13 223 | 133 099 | 133 099 |
| 1954 | 0 | 98 012 | 22 375 | 8 531 | 5 145 | 13 676 | 134 063 | 134 063 |
| 1955 | 0 | 101 659 | 23 425 | 9 345 | 4 727 | 14 072 | 139 156 | 139 156 |
| 1956 | 0 | 92 189 | 25 676 | 7 787 | 4 663 | 12 450 | 130 315 | 130 315 |
| 1957 | 0 | 104 782 | 30 925 | 8 829 | 6 321 | 15 150 | 150 227 | 150 227 |
| 1958 | 0 | 100 035 | 27 743 | 6 885 | 5 212 | 12 097 | 139 875 | 139 875 |
| 1959 | 0 | 111 580 | 31 755 | 7 868 | 5 245 | 13 113 | 156 448 | 156 448 |

* Values for 1936-51 calculated as recorded total landings minus steam trawler landings and rounded to nearest 50 cwt. Because some values are rounded estimates, different subtotals may not agree. Values for 1952-59 are recorded total landings.
† Data not recorded, but calculated to nearest 50 cwt from listed percentage values of total landings.
‡ A dash indicates that data were not recorded.
§ Estimated values (see notes to Table 1).
‖ Auckland values not recorded, but estimated as 4000 cwt from 1938, 1939, and 1944 values in Table 1; totals rounded to nearest 100 cwt.
¶ Data not recorded, but calculated as difference between total recorded landing and estimated landing of line and net vessels and rounded to nearest 100 cwt.

**TABLE 8: Commercial landings of snapper, tarakihi, gurnard, and trevally and total landings of all fish species by all fishing methods at Auckland and Manukau combined, 1931-71**

| Year | Snapper | Tarakihi | Gurnard | Trevally | All species |
|---|---|---|---|---|---|
| 1931 | 43 102 | 23 652 | 101 | 52 | 83 753 |
| 1932 | 49 657 | 11 933 | 0 | 0 | 82 758 |
| 1933 | 60 540 | 10 766 | 413 | 600 | 89 660 |
| 1934 | 68 432 | 14 293 | 505 | 578 | 100 999 |
| 1935 | 88 374 | 18 100 | 766 | —* | 129 209 |
| 1936 | 112 656 | 24 966 | 1 694 | — | 159 371 |
| 1937 | 97 296 | 24 240 | 3 028 | 401 | 140 234 |
| 1938 | 107 252 | 22 530 | 1 353 | 841 | 150 730 |
| 1939 | 100 764†‡ | 20 981‡ | 1 563‡ | 279‡ | 140 562† |
| 1940 | 91 342†‡ | 13 185‡ | 1 639‡ | 144‡ | 127 778 |
| 1941 | 87 028‡ | 12 882‡ | 1 375‡ | 157‡ | 121 151 |
| 1942 | 73 604‡ | 16 470‡ | 1 447‡ | 127‡ | 107 360 |
| 1943 | 75 153‡ | 12 128‡ | 1 361‡ | 36‡ | 105 752 |
| 1944 | 80 118† | 18 289 | 3 206 | 2 973 | 112 196 |
| 1945 | 81 878 | 23 965 | 5 577 | 3 319 | 124 018 |
| 1946 | 93 977 | 27 788 | 7 372 | 2 027 | 142 621 |
| 1947 | 101 960 | 22 285 | 6 199 | 2 298 | 143 705 |
| 1948 | 111 084 | 17 031 | 5 141 | 4 635 | 143 668 |
| 1949 | 92 536 | 22 604 | 5 949 | 5 398 | 134 215 |
| 1950 | 75 516 | 30 680 | 4 694 | 6 979 | 123 676 |
| 1951 | 62 698 | 33 831 | 2 498 | 7 983 | 112 312 |
| 1952 | 61 055 | 36 085 | 5 815 | 5 521 | 115 085 |
| 1953 | 74 051 | 35 155 | 7 837 | 7 003 | 133 099 |
| 1954 | 78 204 | 29 706 | 7 767 | 8 270 | 134 063 |
| 1955 | 75 643 | 34 995 | 7 859 | 11 063 | 139 156 |
| 1956 | 77 012 | 27 360 | 6 611 | 9 946 | 130 315 |
| 1957 | 95 213 | 22 139 | 7 312 | 15 619 | 150 227 |
| 1958 | 84 934 | 19 554 | 6 762 | 17 002 | 139 875 |
| 1959 | 95 174 | 24 805 | 6 665 | 18 903 | 156 448 |
| 1960 | 98 474 | 19 975 | 7 629 | 25 680 | 161 720 |
| 1961 | 94 971 | 19 974 | 9 277 | 24 118 | 159 882 |
| 1962 | 98 411 | 14 460 | 8 009 | 30 091 | 161 131 |
| 1963 | 102 176 | 17 517 | 9 559 | 29 537 | 169 050 |
| 1964 | 101 256 | 12 625 | 16 088 | 28 189 | 169 180 |
| 1965 | 103 810 | 11 559 | 15 862 | 29 787 | 172 592 |
| 1966 | 115 393 | 8 483 | 18 812 | 30 292 | 184 469 |
| 1967 | 112 506 | 7 333 | 16 829 | 25 977 | 174 439 |
| 1968 | 132 168 | 8 013 | 18 633 | 30 483 | 201 486 |
| 1969 | 148 410 | 5 744 | 21 813 | 32 530 | 221 792 |
| 1970 | 143 488 | 9 880 | 23 255 | 34 942 | 227 608 |
| 1971 | 169 891 | 9 597 | 19 136 | 41 537 | 256 969 |

* A dash indicates that data were not recorded.
† Minor discrepancies in different versions of original tables.
‡ 1939-43 Manukau values either were not recorded or were listed with those of Auckland; original data are ambiguous. The landings for these years were small and would include only about 200 cwt of snapper.

**TABLE 9: Commercial fish landings at Thames, Whangarei, and Coromandel, 1915-71**

| Year | Thames | Whangarei | Coromandel |
|---|---|---|---|
| 1915 | 1 126 | —* | — |
| 1916 | — | 1 400 | — |
| 1917 | — | 3 000 | — |
| 1918 | 27 700 | 2 470 | — |
| 1919 | 17 136 | 800 | — |
| 1920 | 8 200 | 4 767 | — |
| 1921 | 14 959 | 2 504 | — |
| 1922 | 27 957 | 3 875 | — |
| 1923 | 15 506 | 2 712 | — |
| 1924 | — | 2 299 | — |
| 1925 | — | 2 348 | — |
| 1926 | — | 2 600 | — |
| 1927 | 19 370 | 2 900 | — |
| 1928 | 14 644 | 4 000 | — |
| 1929 | 25 481 | 4 400 | — |
| 1930 | 26 991 | 3 900 | — |
| 1931 | 21 302 | 3 770 | — |
| 1932 | 18 078 | 3 320 | — |
| 1933 | 17 412 | 4 931 | — |
| 1934 | 17 614 | 3 930 | — |
| 1935 | 19 134 | 1 254 | — |
| 1936 | 15 447 | 1 241 | — |
| 1937 | 18 692 | 990 | — |
| 1938 | 17 199 | 908 | — |
| 1939 | 19 399 | 1 086 | 24 |
| 1940 | 14 211 | 1 115 | 48 |
| 1941 | 14 377 | 665 | 111 |
| 1942 | 12 641 | 1 460 | 60 |
| 1943 | 18 302 | 3 858 | 161 |
| 1944 | 19 825 | 4 104 | 184 |
| 1945 | 17 245 | 1 766 | 168 |
| 1946 | 10 824 | 2 325 | 156 |
| 1947 | 13 035 | 1 930 | 43 |
| 1948 | 17 105 | 4 163 | 358 |
| 1949 | 17 602 | 5 247 | 930 |
| 1950 | 15 777 | 5 213 | 433 |
| 1951 | 17 721 | 2 510 | 582 |
| 1952 | 11 212 | 1 642 | 1 049 |
| 1953 | 11 065 | 2 909 | 31 |
| 1954 | 11 727 | 4 114 | 49 |
| 1955 | 12 470 | 5 323 | 34 |
| 1956 | 15 805 | 5 388 | 96 |
| 1957 | 14 790 | 5 087 | 205 |
| 1958 | 14 454 | 4 169 | 653 |
| 1959 | 14 218 | 3 721 | 559 |
| 1960 | 14 917 | 3 435 | 427 |
| 1961 | 13 215 | 2 754 | 463 |
| 1962 | 15 394 | 2 979 | 1 484 |
| 1963 | 15 018 | 2 536 | 1 486 |
| 1964 | 14 055 | 2 098 | 3 209 |
| 1965 | 14 072 | 1 981 | 1 555 |
| 1966 | 14 805 | 2 371 | 1 636 |
| 1967 | 11 941 | 3 282 | 1 209 |
| 1968 | 15 319 | 2 799 | 1 511 |
| 1969 | 15 379 | 2 662 | 5 037 |
| 1970 | 18 790 | 3 387 | 14 502 |
| 1971 | 14 961 | 5 713 | 11 933 |

* A dash indicates that data either were not recorded or were combined with those of Auckland.

**TABLE 10: Snapper landings at Hauraki Gulf ports, 1931-71, and statistical fishing area 3 (Hauraki Gulf), 1960-71**

| Year | Auckland | Thames | Whangarei | Coromandel | Total from Gulf ports | Landings from statistical fishing area 3* | Percentage of snapper landed into Gulf ports which is reported as caught in Hauraki Gulf |
|---|---|---|---|---|---|---|---|
| 1931 | 43 102 | 10 257 | 2 540 | —† | 55 899 | | |
| 1932 | 49 657 | 9 750 | 2 430 | —† | 61 837 | | |
| 1933 | 60 540 | 10 429 | 3 245 | —† | 74 214 | | |
| 1934 | 68 432 | 11 163 | 2 520 | —† | 82 115 | | |
| 1935 | 88 374 | 14 053 | 820 | —† | 103 247 | | |
| 1936 | 112 656 | 11 356 | 1 020 | —† | 125 032 | | |
| 1937 | 97 296 | 13 400 | 853 | —† | 111 549 | | |
| 1938 | 107 252 | 11 123 | 717 | —† | 119 092 | | |
| 1939 | 100 764‡ | 14 153 | 827 | —§ | 115 744‡ ‖ | | |
| 1940 | 91 342‡ | 7 891 | 872 | —§ | 100 105‡ ‖ | | |
| 1941 | 87 028 | 6 941 | 473 | —§ | 94 442 ‖ | | |
| 1942 | 73 604 | 5 125 | 809 | —§ | 79 538 ‖ | | |
| 1943 | 75 153 | 9 911 | 1 290 | —§ | 86 354 ‖ | | |
| 1944 | 79 844 | 11 696 | 1 344 | —§ | 92 884 ‖ | | |
| 1945 | 81 706 | 10 413 | 859 | 161 | 93 139 | | |
| 1946 | 93 792 | 4 754 | 586 | 142 | 99 274 | | |
| 1947 | 101 470 | 5 796 | 930 | 34 | 108 230 | | |
| 1948 | 110 911 | 8 730 | 3 058 | 113 | 122 812 | | |
| 1949 | 92 262 | 11 511 | 4 246 | 129 | 108 148 | | |
| 1950 | 75 291 | 10 567 | 4 050 | 82 | 89 990 | | |
| 1951 | 62 518 | 11 581 | 2 043 | 346 | 76 488 | | |
| 1952 | 59 815 | 5 506 | 1 209 | 944 | 67 474 | | |
| 1953 | 56 648 | 6 089 | 1 740 | 28 | 64 505 | | |
| 1954 | 63 507 | 5 996 | 3 043 | 48 | 72 594 | | |
| 1955 | 60 874 | 5 987 | 4 683 | 33 | 71 577 | | |
| 1956 | 62 545 | 10 934 | 4 702 | 93 | 78 274 | | |
| 1957 | 74 910 | 9 267 | 4 115 | 201 | 88 493 | | |
| 1958 | 74 339 | 8 202 | 3 348 | 535 | 86 424 | | |
| 1959 | 83 110 | 7 715 | 2 920 | 515 | 94 260 | | |
| 1960 | 82 999 | 6 772 | 2 704 | 398 | 92 873 | 59 077 | 64 |
| 1961 | 78 266 | 6 146 | 1 965 | 387 | 86 764 | 47 931 | 55 |
| 1962 | 80 926 | 7 736 | 2 196 | 1 014 | 91 872 | 52 467 | 57 |
| 1963 | 84 216 | 8 101 | 1 719 | 1 155 | 95 191 | 55 377 | 58 |
| 1964 | 86 052 | 7 630 | 1 208 | 1 457 | 96 347 | 57 113 | 59 |
| 1965 | 92 256 | 5 927 | 1 148 | 910 | 100 241 | 50 601 | 50 |
| 1966 | 92 289 | 7 667 | 1 248 | 911 | 102 115 | 63 735 | 62 |
| 1967 | 96 727 | 4 744 | 2 436 | 663 | 104 570 | 69 026 | 66 |
| 1968 | 112 398 | 7 125 | 2 293 | 762 | 122 578 | 91 776 | 75 |
| 1969 | 129 111 | 5 782 | 1 862 | 4 215 | 140 970 | 98 623 | 70 |
| 1970 | 123 641 | 8 611 | 2 301 | 13 324 | 147 877 | 122 516 | 83 |
| 1971 | 144 737 | 9 508 | 3 946 | 11 188 | 169 379 | 139 333 | 82 |

* Data from Table 21.
† 1931-38 Coromandel values were included with those of Auckland.
‡ Minor discrepancies in different versions of original tables.
§ 1939-44 Coromandel values either were not recorded or were listed with those of Auckland. Original data are ambiguous.
‖ Coromandel values, of about 100 cwt, may not be included in these totals.

**TABLE 11: Snapper landings, by fishing method, from Hauraki Gulf, 1960-71 (3-year moving average)**

| Years | Trawl | | Danish seine | | Long-line | | Set net | |
|---|---|---|---|---|---|---|---|---|
| | Catch | Catch/day | Catch | Catch/day | Catch | Catch/day | Catch | Catch/day |
| 1960-62 | 19 567 | 8.8 | 16 985 | 10.5 | 9 463 | 1.1 | 6 845 | 1.8 |
| 1961-63 | 17 654 | 9.1 | 17 206 | 10.6 | 8 867 | 1.1 | 7 900 | 2.1 |
| 1962-64 | 21 090 | 10.8 | 16 558 | 10.8 | 8 233 | 1.2 | 9 105 | 2.4 |
| 1963-65 | 23 795 | 10.6 | 14 480 | 9.8 | 7 415 | 1.3 | 8 673 | 2.4 |
| 1964-66 | 26 143 | 10.2 | 14 675 | 9.8 | 7 960 | 1.5 | 8 373 | 2.4 |
| 1965-67 | 28 667 | 10.8 | 16 165 | 10.3 | 9 412 | 1.8 | 6 877 | 2.0 |
| 1966-68 | 32 552 | 12.1 | 22 827 | 13.7 | 11 959 | 2.1 | 7 508 | 2.0 |
| 1967-69 | 35 066 | 13.9 | 32 127 | 18.0 | 12 633 | 2.2 | 6 649 | 1.7 |
| 1968-70 | 34 213 | 13.4 | 49 121 | 20.0 | 13 261 | 2.3 | 7 708 | 2.0 |
| 1969-71 | 35 375 | 13.3 | 64 447 | 19.2 | 12 829 | 2.2 | 7 505 | 2.1 |

**TABLE 12: Number of steam trawlers registered at Auckland, 1899-1904 and 1915-51**

| Year | No. of vessels registered F | P* | Total | No. of trawler-months worked | No. of fishing trips |
|---|---|---|---|---|---|
| 1899 | —† | — | 1‡ | — | — |
| 1900 | — | — | 1‡ | — | — |
| 1901 | — | — | 1‡ | — | — |
| 1902 | — | — | 1‡ | — | — |
| 1903 | — | — | 1‡ | — | — |
| 1904 | — | — | 1‡ | — | — |
| 1915 | — | — | 4‡ | — | — |
| 1916 | — | — | 5‡ | — | — |
| 1917 | — | — | 6‡ | — | — |
| 1918 | — | — | 5‡ | — | — |
| 1919 | — | — | 5‡ | — | — |
| 1920 | — | — | 5‡ | — | — |
| 1921 | — | — | 8‡ | — | — |
| 1922 | — | — | 8‡ | — | — |
| 1923 | — | — | 8‡ | — | — |
| 1924 | — | — | 8‡ | — | — |
| 1925 | — | — | 2‡ | — | — |
| 1926 | — | — | 5‡ | — | — |
| 1927 | 4 | 0 | 4 | — | — |
| 1928 | 2 | 3 | 5 | — | — |
| 1929 | 4 | 0 | 4 | — | — |
| 1930 | 4 | 1 | 5 | 51 | — |
| 1931 | 1 | 3 | 4 | 27 | — |
| 1932 | 1 | 3 | 4 | 16 | — |
| 1933 | 1 | 2 | 3 | 12 | — |
| 1934 | 1 | 1 | 2 | 13 | — |
| 1935 | 1 | 2 | 3 | 27 | 95 |
| 1936 | 2 | 1 | 3 | 33§ | 117 |
| 1937 | 0 | 3 | 3 | 19§ | 68 |
| 1938 | 1 | 2 | 3 | 24§ | 85 |
| 1939 | 0 | 3 | 3 | 18 | 44 |
| 1940 | 0 | 0 | 0 | 0 | 0 |
| 1941 | 0 | 0 | 0 | 0 | 0 |
| 1942 | 0 | 0 | 0 | 0 | 0 |
| 1943 | 0 | 0 | 0 | 0 | 0 |
| 1944 | 0 | 1 | 1 | 1§ | 5 |
| 1945 | 1 | 1 | 2 | — | — |
| 1946 | 2 | 0 | 2 | — | — |
| 1947 | 3 | 0 | 3 | 28 | — |
| 1948 | 3 | 0 | 3 | 27 | — |
| 1949 | 3 | 0 | 3 | 27 | — |
| 1950 | 3 | 0 | 3 | 24 | — |
| 1951 ‖ | 0 | 2 | 2 | 9 | — |

* Full-time and part-time vessels.
† A dash indicates that data were not recorded.
‡ Data obtained from Hefford (1929, Table 1). Some data in his Appendix A conflict slightly.
§ Data not recorded, but calculated from relationship between trawler-months and trips in 1935.
‖ No steam trawlers were registered at Auckland after 1951.

**TABLE 13: Number of motor trawlers registered at Hauraki Gulf ports and Manukau, 1942-71**

| Year | Auckland F | P* | Whangarei F | P | Total from Gulf ports† | Manukau F | P |
|---|---|---|---|---|---|---|---|
| 1942 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 1943 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 1944 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1945 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1946 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| 1947 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1948 | 2‡ | 0 | 1 | 0 | 3 | 0 | 0 |
| 1949 | 12 | 0 | 1 | 0 | 13 | 0 | 0 |
| 1950 | 18 | 0 | 1 | 0 | 19 | 0 | 0 |
| | Total | | Total | | | Total | |
| 1951 | 24 | | 1 | | 25 | 0 | |
| 1952 | 29 | | 0 | | 29 | 3§ | |
| 1953 | 29 | | 0 | | 29 | 15§ | |
| 1954 | 27 | | 0 | | 27 | 8§ | |
| 1955 | 27 | | 1 | | 28 | 6§ | |
| 1956 | 26 | | 1 | | 27 | 7§ | |
| 1957 | 29 | | 1 | | 30 | 10§ | |
| 1958 | 30 | | 1 | | 31 | 10§ | |
| 1959 | 30 | | 0 | | 30 | 11§ | |
| 1960 | 29 | | 0 | | 29 | 1§ | |
| 1961 | 28 | | 0 | | 28 | 0 | |
| 1962 | 28 | | 0 | | 28 | 0 | |
| 1963 | 31 | | 0 | | 31 | 0 | |
| 1964 | 33 | | 0 | | 33 | 0 | |
| 1965 | 32 | | 0 | | 32 | 0 | |
| 1966 | 34 | | 0 | | 34 | 0 | |
| 1967 | 33 | | 0 | | 33 | 0 | |
| 1968 | 34 | | 2 | | 36 | 0 | |
| 1969 | 34 | | 5 | | 39 | 0 | |
| 1970 | 30 | | 3 | | 33 | 0 | |
| 1971 | 31 | | 2 | | 33 | 0 | |

* Full-time and part-time vessels.
† No trawlers were registered at Thames or Coromandel during this period.
‡ Although only 2 trawlers were registered, 5 seiners were recorded as converting to trawlers during the year.
§ In 1952-60 these vessels worked from and were registered at Manukau, but most—perhaps all—came from and were also registered at Auckland.

**TABLE 14: Number of Danish seiners registered at Hauraki Gulf ports, 1923-71**

| Year | Auckland* Total | | Thames Total | | Whangarei Total | | Coromandel Total | | Hauraki Gulf Total |
|---|---|---|---|---|---|---|---|---|---|
| 1923 | 3† | | —‡ | | 0 | | — | | 3 |
| 1924 | 22† | | — | | 0 | | — | | 22 |
| 1925 | 23† | | — | | 0 | | — | | 23 |
| | F | P§ | F | P | F | P | F | P | |
| 1926 | 19 | 7† | — | | 0 | 0 | — | | 26 |
| 1927 | 22 | 0‖ | 0 | 7 | 0 | 0 | — | | 29 |
| 1928 | 22 | 1¶ | 4 | 1 | 0 | 0 | — | | 28 |
| 1929 | 19 | 7 | 8 | 0 | 0 | 0 | — | | 34 |
| 1930 | 20 | 6 | 8 | 5 | 2 | 0 | — | | 41 |
| 1931 | 26 | 6 | 9 | 5 | 2 | 0 | — | | 48 |
| 1932 | 24 | 10 | 6 | 4 | 0 | 0 | — | | 44 |
| 1933 | 31 | 7 | 4 | 0 | 0 | 0 | — | | 42 |
| 1934 | 37 | 2 | 2 | 1 | 0 | 0 | — | | 42 |
| 1935 | 34 | 6 | 1 | 2 | 0 | 0 | — | | 43 |
| 1936 | 39 | 8 | 2 | 0 | 0 | 0 | — | | 49 |
| 1937 | 42 | 3 | 2 | 1 | 0 | 0 | — | | 48 |
| 1938 | 42 | 5 | 2 | 0 | 0 | 0 | — | | 49 |
| 1939 | 44 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 49 |
| 1940 | 44 | 1 | 2 | 0 | 0 | 1 | 0 | 0 | 48 |
| 1941 | 43 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 46 |
| 1942 | 42 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 45 |
| 1943 | 35 | 6 | 2 | 0 | 0 | 0 | 0 | 0 | 43 |
| 1944 | 37 | 4 | 1 | 1 | 0 | 0 | 0 | 0 | 43 |
| 1945 | 35 | 5 | 0 | 1 | 0 | 0 | 0 | 0 | 41 |
| 1946 | 36 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 40 |
| 1947 | 37 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 37 |
| 1948 | 37 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 37 |
| 1949 | 32 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 35 |
| 1950 | 24 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 25 |
| | Total | | Total | | Total | | Total | | |
| 1951 | 18 | | 0 | | 0 | | 0 | | 18 |
| 1952 | 16 | | 0 | | 0 | | 0 | | 16 |
| 1953 | 14 | | 0 | | 0 | | 0 | | 14 |
| 1954 | 13 | | 0 | | 0 | | 0 | | 13 |
| 1955 | 13 | | 0 | | 0 | | 0 | | 13 |
| 1956 | 13 | | 0 | | 0 | | 0 | | 13 |
| 1957 | 14 | | 0 | | 0 | | 0 | | 14 |
| 1958 | 14 | | 0 | | 0 | | 0 | | 14 |
| 1959 | 13 | | 0 | | 0 | | 0 | | 13 |
| 1960 | 13 | | 0 | | 0 | | 0 | | 13 |
| 1961 | 12 | | 0 | | 0 | | 0 | | 12 |
| 1962 | 12 | | 0 | | 0 | | 0 | | 12 |
| 1963 | 12 | | 0 | | 0 | | 0 | | 12 |
| 1964 | 11 | | 0 | | 0 | | 0 | | 12 |
| 1965 | 11 | | 1 | | 0 | | 0 | | 12 |
| 1966 | 12 | | 1 | | 0 | | 0 | | 13 |
| 1967 | 13 | | 1 | | 0 | | 0 | | 14 |
| 1968 | 13 | | 2 | | 0 | | 0 | | 15 |
| 1969 | 23 | | 1 | | 0 | | 4 | | 28 |
| 1970 | 33 | | 2 | | 4 | | 6 | | 45 |
| 1971 | 36 | | 0 | | 3 | | 11 | | 50 |

* Auckland figures include those for Thames and Coromandel for some early years (see introductory notes to Appendix).
† Data from Hefford (1929, Table 1).
‡ A dash indicates that data were not recorded.
§ Full-time and part-time vessels.
‖ Includes one full-time steam-powered seiner. Before 1927 steam-powered seiners were not recorded separately.
¶ Includes one part-time steam-powered seiner. From 1929 no steam-powered seiners were registered.

**TABLE 15: Number of line and net vessels registered at Hauraki Gulf ports and Manukau, 1915-71**

| Year | Auckland* Total | Thames Total | Whangarei Total | Coromandel Total | Gulf ports Total | Manukau Total | Gulf ports plus Manukau Total |
|---|---|---|---|---|---|---|---|
| 1915† | 216 | 42 | —‡ | — | 254 | — | 254 |
| 1916 | 153 | 25 | 6 | — | 184 | — | 184 |
| 1917 | 130 | — | 5 | — | 165§ | — | 165 |
| 1918 | 65 | 36 | 15 | — | 116 | — | 116 |
| 1919 | 21 | 60 | 10 | — | 91 | — | 91 |
| 1920 | 165 | 32 | 12 | — | 209 | — | 209 |
| 1921 | 184 | 32 | 17 | — | 233 | — | 233 |
| 1922 | 35 | 47 | 10 | — | 92 | — | 92 |
| 1923 | 191 | — | 12 | — | 203 | — | 203 |
| 1924 | 123 | — | 12 | — | 135 | — | 135 |
| 1925 | 270 | — | 15 | — | 285 | — | 285 |
| 1926 | 215 | — | 8 | — | 223 | — | 223 |

| Year | Motor | | Sail | | Row | | Motor | | Row | | Motor | | Row | | Motor | | Row | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | F | P‖ | F | P | F | P | F | P | F | P | F | P | F | P | F | P | F | P | | | |
| 1927 | 169 | 0 | 4 | 0 | 112 | 0 | 39 | 0 | 0 | 5 | 8 | 11 | 0 | 1 | | | — | | 349 | — | 349 |
| 1928 | 100 | 9 | 1 | 5 | 30 | 40 | 31 | 0 | 0 | 2 | 6 | 18 | 0 | 2 | | | — | | 244 | — | 244 |
| 1929 | 60 | 40 | 3 | 2 | 45 | 30 | 20 | 4 | 1 | 2 | 8 | 1 | 0 | 7 | | | — | | 223 | — | 223 |
| 1930 | 63 | 50 | | 1 | 50 | 40 | 27 | 5 | 2 | 3 | 8 | 0 | 1 | 0 | | | — | | 250 | — | 250 |
| 1931 | 70 | 28 | 1 | 1 | 19 | 21 | 22 | 4 | 3 | 2 | 6 | 0 | 1 | 0 | | | — | | 178 | — | 178 |
| 1932 | 72 | 45 | 1 | 2 | 50 | 80 | 22 | 4 | 2 | 0 | 10 | 0 | 1 | 0 | | | — | | 289 | — | 289 |
| 1933 | 82 | 53 | 1 | 10 | 45 | 45 | 24 | 2 | 2 | 2 | 17 | 4 | 0 | 3 | | | — | | 290 | — | 290 |
| 1934 | 161 | 30 | 0 | 0 | 20 | 56 | 21 | 1 | 3 | 1 | 9 | 10 | 0 | 7 | | | — | | 319 | — | 319 |
| 1935¶ | 47 | 41 | | | 14 | 50 | 19 | 5 | 2 | 1 | 3 | 12 | 0 | 5 | | | — | | 199 | — | 199 |
| 1936 | 23 | 39 | | | 9 | 59 | 29 | 0 | 11 | 0 | 6 | 3 | 0 | 3 | | | — | | 182 | — | 182 |
| 1937 | 14 | 50 | | | 2 | 49 | 25 | 6 | 3 | 6 | 2 | 8 | 0 | 3 | | | — | | 168 | — | 168 |
| 1938 | 9 | 47 | | | 3 | 42 | 22 | 16 | 1 | 5 | 2 | 10 | 0 | 4 | | | — | | 161 | — | 161 |

| Year | | | | | | | | | | | | | | | | | | | | Motor | | Row | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | | F | P | F | P | | |
| 1939 | 6 | 44 | | | 0 | 25 | 18 | 12 | 0 | 4 | 3 | 11 | 0 | 6 | 0 | 3 | 0 | 2 | 134 | 3 | 14 | 3 | 6 | 160 | |
| 1940 | 9 | 27 | | | 0 | 7 | 21 | 12 | 0 | 0 | 1 | 10 | 0 | 1 | 0 | 2 | 0 | 0 | 89 | 11 | 3 | 4 | 2 | 109 | |
| 1941 | 8 | 18 | | | 0 | 8 | 18 | 10 | 0 | 1 | 1 | 10 | 0 | 2 | 0 | 0 | 0 | 1 | 77 | 2 | 13 | 2 | 3 | 97 | |
| 1942 | 10 | 13 | | | 0 | 7 | 18 | 8 | 1 | 0 | 2 | 10 | 1 | 0 | 0 | 3 | 0 | 0 | 73 | 3 | 11 | 0 | 2 | 89 | |
| 1943 | 6 | 27 | | | 0 | 5 | 16 | 6 | 0 | 3 | 2 | 15 | 1 | 0 | 0 | 0 | 1 | 2 | 84 | 7 | 7 | 0 | 2 | 100 | |
| 1944 | 4 | 19 | | | 0 | 3 | 14 | 7 | 0 | 1 | 5 | 10 | 0 | 1 | 0 | 2 | 0 | 1 | 57 | 3 | 6 | 0 | 2 | 78 | |
| 1945 | 4 | 20 | | | 0 | 5 | 21 | 6 | 0 | 2 | 3 | 6 | 0 | 0 | 1 | 1 | 0 | 1 | 70 | 6 | 5 | 0 | 0 | 81 | |
| 1946 | 11 | 24 | | | 0 | 7 | 13 | 9 | 0 | 3 | 3 | 8 | 0 | 1 | 0 | 3 | 0 | 1 | 83 | 5 | 6 | 0 | 0 | 94 | |
| 1947** | 11 | 10 | | | 0 | 2 | 20 | 3 | 1 | 2 | 5 | 3 | 0 | 0 | 0 | 0 | 0 | 1 | 58 | 7 | 5 | 0 | 0 | 70 | |
| 1948 | 14 | 23 | | | 0 | 0 | 20 | 2 | 0 | 4 | 5 | 9 | 0 | 1 | 0 | 1 | 1 | 1 | 80 | 4 | 5 | 0 | 0 | 89 | |
| 1949 | 18 | 59 | | | 0 | 12 | 22 | 15 | 0 | 10 | 5 | 13 | 0 | 2 | 1 | 4 | 0 | 5 | 166 | 4 | 9 | 0 | 4 | 183 | |

| Year | Total | Total | Total | Total | | Total | |
|---|---|---|---|---|---|---|---|
| 1950† | 81 | 44 | 20 | 8 | 153 | 16 | 169 |
| 1951 | 103 | 46 | 20 | 8 | 177 | 19 | 196 |
| 1952 | 95 | 42 | 29 | 5 | 171 | 25 | 196 |
| 1953 | 108 | 40 | 35 | 3 | 186 | 26 | 212 |
| 1954 | 117 | 40 | 51 | 3 | 211 | 28 | 239 |
| 1955 | 96 | 40 | 42 | 1 | 179 | 23 | 202 |
| 1956 | 111 | 33 | 44 | 2 | 190 | 21 | 211 |
| 1957 | 121 | 35 | 37 | 3 | 196 | 23 | 219 |
| 1958 | 142 | 44 | 47 | 8 | 241 | 26 | 267 |
| 1959 | 117 | 41 | 45 | 7 | 210 | 27 | 237 |
| 1960 | 137 | 42 | 47 | 7 | 233 | 29 | 262 |
| 1961 | 134 | 40 | 55 | 10 | 239 | 32 | 271 |
| 1962 | 164 | 40 | 59 | 25 | 288 | 33 | 321 |
| 1963 | 152 | 34 | 61 | 24 | 271 | 48 | 319 |
| 1964 | 90 | 28 | 41 | 16 | 175 | 52 | 227 |
| 1965 | 124 | 23 | 37 | 13 | 197 | 64 | 261 |
| 1966 | 147 | 23 | 44 | 13 | 227 | 75 | 302 |
| 1967 | 185 | 37 | 42 | 15 | 279 | 75 | 354 |
| 1968 | 213 | 46 | 73 | 12 | 344 | 71 | 415 |
| 1969 | 215 | 58 | 85 | 15 | 373 | 89 | 462 |
| 1970 | 239 | 59 | 84 | 12 | 394 | 105 | 499 |
| 1971 | 246 | 57 | 96 | 10 | 409 | 120 | 529 |

* Auckland figures include those for Thames and Coromandel for some early years (see introductory notes to the Appendix).
† From 1915 to 1926 and 1950 onwards the category of vessel (motor, sail, or row) was not specified.
‡ A dash indicates that data were not recorded.
§ The 1917 total included an estimated 30 vessels from Thames.
‖ Full-time and part-time vessels.
¶ Sail-boats were not listed from 1935.
** Part-time vessels from 1947 to 1950 earned $100 to $400 a year. In 1950 full-time and part-time vessels were listed separately, but were not categorised as motor or row boats. Full-time and part-time vessels were not listed separately from 1951.

**TABLE 16: Fishing effort (number of boats working each month, by method, and theoretical number of boat-years) in Hauraki Gulf, 1960-71**

| Year | Boats fishing each month | | | | | | | | | | | | Boat-years* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | J | F | M | A | M | J | J | A | S | O | N | D | |
| | Summer | | | Autumn | | | Winter | | | Spring | | | |
| **Trawl** | | | | | | | | | | | | | |
| 1960 | 11 | 11 | 14 | 12 | 13 | 13 | 11 | 14 | 14 | 14 | 10 | 8 | 12.1 |
| 1961 | 13 | 17 | 11 | 12 | 12 | 16 | 12 | 10 | 7 | 5 | 6 | 6 | 10.6 |
| 1962 | 5 | 6 | 7 | 7 | 8 | 9 | 10 | 6 | 8 | 10 | 8 | 8 | 7.7 |
| 1963 | 7 | 8 | 10 | 11 | 7 | 10 | 10 | 11 | 8 | 9 | 11 | 11 | 9.4 |
| 1964 | 7 | 9 | 11 | 14 | 12 | 12 | 13 | 11 | 10 | 6 | 10 | 12 | 10.6 |
| 1965 | 8 | 16 | 11 | 11 | 13 | 10 | 10 | 13 | 14 | 13 | 11 | 12 | 11.8 |
| 1966 | 7 | 11 | 12 | 17 | 18 | 18 | 12 | 17 | 13 | 12 | 10 | 10 | 13.1 |
| 1967 | 12 | 8 | 15 | 12 | 14 | 12 | 12 | 13 | 13 | 13 | 11 | 11 | 12.2 |
| 1968 | 11 | 14 | 11 | 13 | 15 | 12 | 11 | 10 | 9 | 10 | 12 | 15 | 11.9 |
| 1969 | 15 | 12 | 14 | 11 | 12 | 63 | 13 | 12 | 14 | 17 | 13 | 13 | 13.3 |
| 1970 | 15 | 11 | 11 | 12 | 13 | 14 | 14 | 15 | 12 | 13 | 12 | 20 | 13.5 |
| 1971 | 15 | 14 | 16 | 18 | 14 | 21 | 18 | 17 | 14 | 13 | 12 | 13 | 15.4 |
| **Danish seine** | | | | | | | | | | | | | |
| 1960 | 9 | 12 | 7 | 11 | 9 | 9 | 11 | 12 | 9 | 11 | 11 | 9 | 10.0 |
| 1961 | 10 | 8 | 10 | 8 | 9 | 11 | 9 | 10 | 9 | 11 | 11 | 10 | 9.7 |
| 1962 | 11 | 11 | 10 | 8 | 9 | 8 | 9 | 8 | 9 | 9 | 9 | 9 | 9.2 |
| 1963 | 8 | 9 | 9 | 9 | 9 | 8 | 8 | 9 | 9 | 9 | 9 | 9 | 8.8 |
| 1964 | 8 | 8 | 7 | 6 | 6 | 7 | 7 | 6 | 8 | 8 | 8 | 8 | 7.3 |
| 1965 | 8 | 8 | 10 | 7 | 6 | 7 | 6 | 6 | 9 | 10 | 10 | 10 | 8.1 |
| 1966 | 8 | 10 | 8 | 11 | 10 | 11 | 9 | 8 | 9 | 11 | 11 | 12 | 9.8 |
| 1967 | 10 | 10 | 9 | 9 | 9 | 9 | 10 | 9 | 9 | 10 | 10 | 9 | 9.4 |
| 1968 | 10 | 10 | 10 | 7 | 9 | 9 | 10 | 9 | 10 | 10 | 12 | 14 | 10.0 |
| 1969 | 14 | 12 | 12 | 11 | 12 | 13 | 13 | 14 | 17 | 19 | 18 | 14 | 14.1 |
| 1970 | 23 | 26 | 25 | 23 | 25 | 24 | 21 | 21 | 22 | 30 | 36 | 32 | 25.7 |
| 1971 | 31 | 33 | 32 | 25 | 23 | 28 | 28 | 28 | 32 | 34 | 35 | 37 | 30.5 |
| **Long-line** | | | | | | | | | | | | | |
| 1960 | 61 | 62 | 71 | 74 | 63 | 66 | 69 | 63 | 67 | 75 | 69 | 70 | 67.5 |
| 1961 | 62 | 64 | 69 | 73 | 67 | 71 | 67 | 70 | 68 | 73 | 66 | 62 | 67.7 |
| 1962 | 64 | 68 | 79 | 76 | 77 | 73 | 67 | 67 | 73 | 79 | 72 | 67 | 71.8 |
| 1963 | 68 | 61 | 68 | 73 | 74 | 73 | 55 | 62 | 63 | 73 | 64 | 55 | 65.8 |
| 1964 | 45 | 49 | 51 | 52 | 60 | 54 | 38 | 38 | 39 | 43 | 41 | 44 | 46.2 |
| 1965 | 39 | 45 | 49 | 48 | 48 | 45 | 31 | 35 | 37 | 56 | 51 | 48 | 44.3 |
| 1966 | 40 | 44 | 52 | 56 | 58 | 55 | 45 | 50 | 57 | 61 | 54 | 57 | 52.4 |
| 1967 | 59 | 64 | 48 | 52 | 54 | 58 | 57 | 52 | 66 | 63 | 59 | 56 | 57.3 |
| 1968 | 55 | 58 | 61 | 66 | 68 | 61 | 55 | 54 | 53 | 59 | 58 | 58 | 58.8 |
| 1969 | 54 | 56 | 68 | 58 | 65 | 60 | 52 | 57 | 64 | 60 | 77 | 66 | 61.4 |
| 1970 | 59 | 61 | 63 | 61 | 60 | 64 | 54 | 54 | 63 | 68 | 70 | 60 | 61.4 |
| 1971 | 57 | 66 | 70 | 66 | 63 | 59 | 58 | 64 | 60 | 71 | 58 | 59 | 62.6 |
| **Set net** | | | | | | | | | | | | | |
| 1960 | 33 | 28 | 29 | 28 | 25 | 18 | 14 | 23 | 27 | 28 | 22 | 23 | 24.8 |
| 1961 | 32 | 35 | 29 | 25 | 26 | 22 | 17 | 19 | 23 | 26 | 27 | 30 | 25.9 |
| 1962 | 37 | 35 | 37 | 29 | 23 | 23 | 19 | 19 | 24 | 24 | 25 | 25 | 26.7 |
| 1963 | 33 | 37 | 34 | 31 | 27 | 22 | 24 | 21 | 24 | 26 | 28 | 29 | 28.0 |
| 1964 | 30 | 36 | 31 | 29 | 29 | 28 | 24 | 24 | 23 | 24 | 24 | 20 | 26.8 |
| 1965 | 26 | 27 | 28 | 23 | 19 | 19 | 16 | 23 | 19 | 21 | 19 | 15 | 21.3 |
| 1966 | 28 | 27 | 31 | 28 | 21 | 26 | 21 | 20 | 26 | 28 | 20 | 22 | 24.8 |
| 1967 | 25 | 30 | 31 | 33 | 28 | 21 | 21 | 25 | 34 | 27 | 26 | 25 | 27.2 |
| 1968 | 39 | 36 | 34 | 31 | 28 | 21 | 26 | 30 | 35 | 30 | 30 | 31 | 30.9 |
| 1969 | 36 | 39 | 33 | 28 | 26 | 22 | 25 | 28 | 36 | 30 | 31 | 32 | 30.5 |
| 1970 | 37 | 31 | 41 | 39 | 31 | 21 | 19 | 19 | 23 | 25 | 25 | 23 | 27.8 |
| 1971 | 27 | 37 | 33 | 33 | 26 | 27 | 21 | 23 | 25 | 24 | 18 | 19 | 26.1 |

* A boat-year is the work done by one boat working for 12 months and has been calculated as the mean of the monthly values.

**TABLE 17: Size and horsepower of Auckland-registered trawlers in 1961 and 1968**

| Year | Length (range and mean) (m) | Horsepower (range and mean) (bhp) | Age (range and mean) (years) | No. in sample |
|---|---|---|---|---|
| 1961 | 13-19 | 88-200 | 3-46 | 24; these were all the trawlers which worked in the Hauraki Gulf; 28 were registered |
| | 15.2 | 127.0 | 20.3 | |
| 1968 | 11-21 | 44-430 | 1-39 | 34; these were all the trawlers which were registered at Auckland |
| | 16.2 | 187.1 | 21.6 | |

**TABLE 18: Fishing effort of line fishing boats in Hauraki Gulf, 1961 (from computer analysis of monthly commercial fishing returns and *Report on Fisheries*)**

**A: Number of line and net vessels registered**

| | |
|---|---|
| Auckland | 134 |
| Whangarei | 55 |
| Thames | 40 |
| Coromandel | 10 |
| Total | 239 |

The number of vessels which worked with lines at least once in fishing area 3 was 132 (55% of 239).

**B: Number of boats which worked for different periods in fishing area 3**

| Category | No. of months worked | No. of boats | Percentage |
|---|---|---|---|
| Occasional | 1 | 22 | 17 |
| | 2 | 16 | 12 |
| | 3 | 10 | 8 |
| Part-time | 4 | 11 | 8 |
| | 5 | 11 | 8 |
| | 6 | 15 | 11 |
| Full-time | 7 | 6 | 5 |
| | 8 | 2 | 1 |
| | 9 | 10 | 8 |
| | 10 | 9 | 7 |
| | 11 | 6 | 4 |
| | 12 | 14 | 11 |
| | Total | 132 | |

**C: Number of boats which worked for different months of the year**

| Month | Occasional No.* | Occasional %a† | Occasional %b‡ | Part-time No. | Part-time %a | Part-time %b | Full-time No. | Full-time %a | Full-time %b | Total No. working | No. of trips | No. of trips per boat |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| January | 10 | 21 | 16 | 14 | 38 | 23 | 37 | 79 | 61 | 61 | 356 | 5.8 |
| February | 8 | 17 | 13 | 14 | 38 | 23 | 39 | 83 | 64 | 61 | 467 | 7.7 |
| March | 9 | 19 | 14 | 16 | 43 | 25 | 39 | 83 | 61 | 64 | 473 | 7.4 |
| April | 7 | 15 | 10 | 18 | 49 | 26 | 43 | 91 | 63 | 68 | 491 | 7.2 |
| May | 4 | 8 | 6 | 17 | 46 | 27 | 42 | 89 | 67 | 63 | 436 | 6.9 |
| June | 3 | 6 | 5 | 19 | 51 | 30 | 41 | 87 | 65 | 63 | 402 | 6.4 |
| July | 5 | 10 | 8 | 16 | 43 | 27 | 38 | 81 | 64 | 59 | 394 | 6.7 |
| August | 4 | 8 | 7 | 17 | 46 | 28 | 40 | 85 | 66 | 61 | 409 | 6.7 |
| September | 5 | 10 | 8 | 14 | 38 | 23 | 42 | 89 | 69 | 61 | 416 | 6.8 |
| October | 8 | 17 | 12 | 18 | 49 | 28 | 39 | 83 | 60 | 65 | 461 | 7.1 |
| November | 12 | 25 | 20 | 11 | 30 | 18 | 37 | 79 | 62 | 60 | 403 | 6.7 |
| December | 10 | 21 | 18 | 12 | 32 | 21 | 34 | 72 | 61 | 56 | 297 | 5.3 |

* The number of boats actually working.
† The number working as a percentage of the number in the category.
‡ The number working as a percentage of the total number working in a month.

The number of boats which theoretically worked full time (that is, the number of boat-years) was 68 (52% of 132).

**TABLE 19: Catch and catch per vessel of all fish species by motor trawlers at Auckland and Manukau combined, 1946-59**

| Year | No. of trawlers registered at Auckland | Trawler catch, all species | Catch per trawler | Year | No. of trawlers registered at Auckland | Trawler catch, all species | Catch per trawler |
|---|---|---|---|---|---|---|---|
| 1946 | 1 | 172 | 172* | 1953 | 29 | 92 585 | 3 193 |
| 1947 | 1† | 39 | 39* | 1954 | 27 | 98 012 | 3 630 |
| 1948 | 2‡ | 8 637 | 4 319* | 1955 | 27 | 101 659 | 3 765 |
| 1949 | 12 | 24 756 | 2 063* | 1956 | 26 | 92 189 | 3 546 |
| 1950 | 18 | 43 785 | 2 433* | 1957 | 29 | 104 782 | 3 613 |
| 1951 | 24 | 63 212 | 2 634* | 1958 | 30 | 100 035 | 3 335 |
| 1952 | 29 | 76 549 | 2 640 | 1959 | 30 | 111 580 | 3 719 |

* During conversion from seiners to trawlers in these years not all vessels were fishing full time.
† No motor trawlers were recorded for this year, though a small trawl catch was subsequently reported (*Report on Fisheries* for 1950).
‡ Although only 2 trawlers were listed, 5 seiners were recorded as converting to trawling during the year.

**TABLE 20: Catch and catch per vessel by Danish seiners, 1936-59 and 1960-71**

**A: Catch and catch per vessel of snapper and other species at Auckland, 1936-59**

| Year | Snapper* | Catch Other species† | All species | No. of seiners Full-time | No. of seiners Total | Snapper catch per seiner Full-time | Snapper catch per seiner Total | Other spp. catch per total No. seiners | All species catch per seiner Full-time | All species catch per seiner Total |
|---|---|---|---|---|---|---|---|---|---|---|
| 1936 | 72 900 | 24 300 | 97 200‡ | 39 | 47 | 1 869 | 1 551 | 517 | 2 492 | 2 068 |
| 1937 | 76 100 | 25 400 | 101 500‡ | 42 | 45 | 1 812 | 1 691 | 564 | 2 417 | 2 256 |
| 1938 | 79 000 | 26 250 | 105 350‡ | 42 | 47 | 1 883 | 1 683 | 559 | 2 508 | 2 241 |
| 1939 | 85 400 | 28 500 | 113 900‡ | 44 | 47 | 1 940 | 1 817 | 606 | 2 589 | 2 423 |
| 1940 | 88 100 | 29 350 | 117 450‡ | 44 | 45 | 2 002 | 1 958 | 652 | 2 669 | 2 610 |
| 1941 | —§ | — | 112 000‖ | 43 | 44 | — | — | — | 2 605 | 2 545 |
| 1942 | — | — | 102 000‖ | 42 | 43 | — | — | — | 2 429 | 2 372 |
| 1943 | — | — | 102 000‖ | 35 | 41 | — | — | — | 2 914 | 2 488 |
| 1944 | 78 000 | 27 400 | 105 376 | 37 | 41 | 2 108 | 1 902 | 668 | 2 848 | 2 570 |
| 1945 | 72 179 | 25 429 | 97 608 | 35 | 40 | 2 062 | 1 804 | 636 | 2 789 | 2 440 |
| 1946 | 70 964 | 26 026 | 96 990 | 36 | 40 | 1 971 | 1 774 | 651 | 2 694 | 2 425 |
| 1947 | 67 757 | 23 067 | 90 824 | 37 | 37 | 1 831 | 1 831 | 623 | 2 455 | 2 455 |
| 1948 | 69 548 | 16 643 | 86 191 | 37 | 37 | 1 880 | 1 880 | 450 | 2 629 | 2 329 |
| 1949 | 54 011 | 11 187 | 65 198 | 32 | 35 | 1 688 | 1 543 | 320 | 2 037 | 1 863 |
| 1950 | 34 513 | 8 245 | 42 758 | 24 | 25 | 1 438 | 1 381 | 330 | 1 782 | 1 710 |
| 1951 | 23 432 | 4 291 | 27 723 | — | 18 | — | 1 302 | 238 | — | 1 540 |
| 1952 | 20 125 | 5 851 | 25 976 | — | 16 | — | 1 258 | 366 | — | 1 624 |
| 1953 | 20 003 | 7 288 | 27 291 | — | 14 | — | 1 429 | 521 | — | 1 949 |
| 1954 | 16 383 | 5 992 | 22 375 | — | 13 | — | 1 260 | 461 | — | 1 721 |
| 1955 | 16 740 | 6 685 | 23 425 | — | 13 | — | 1 288 | 514 | — | 1 802 |
| 1956 | 21 000 | 4 676 | 25 676 | — | 13 | — | 1 615 | 360 | — | 1 975 |
| 1957 | 26 630 | 4 295 | 30 925 | — | 14 | — | 1 902 | 307 | — | 2 209 |
| 1958 | 24 800 | 2 943 | 27 743 | — | 14 | — | 1 771 | 210 | — | 1 982 |
| 1959 | 28 035 | 3 720 | 31 755 | — | 13 | — | 2 157 | 286 | — | 2 443 |

**B: Catch and catch per vessel of snapper, Hauraki Gulf, 1960-71**

| Year | Snapper¶ | No. of boat-years¶ | No. of seiners registered | Snapper catch per seiner No. of boat-years | Snapper catch per seiner *No. of seiners registered |
|---|---|---|---|---|---|
| 1960 | 17 476 | 10.0 | 13 | 1 748 | 1 344 |
| 1961 | 14 591 | 9.7 | 12 | 1 504 | 1 216 |
| 1962 | 18 888 | 9.2 | 12 | 2 053 | 1 574 |
| 1963 | 18 140 | 8.7 | 12 | 2 085 | 1 512 |
| 1964 | 12 645 | 7.2 | 12 | 1 756 | 1 054 |
| 1965 | 12 655 | 8.1 | 11 | 1 562 | 1 150 |
| 1966 | 18 724 | 9.8 | 12 | 1 911 | 1 560 |
| 1967 | 17 116 | 9.4 | 13 | 1 821 | 1 317 |
| 1968 | 32 641 | 10.0 | 13 | 3 264 | 2 511 |
| 1969 | 46 625 | 14.1 | 23 | 3 307 | 2 027 |
| 1970 | 68 097 | 25.7 | 33 | 2 650 | 2 064 |
| 1971 | 80 152 | 30.4 | 36 | 2 586 | 2 184 |

* Snapper data from Table 2; see notes there.
† Data not recorded, but calculated as difference between total landings and snapper landings.
‡ Data not recorded, but calculated from listed percentage values of total landings, and rounded to nearest 50 cwt.
§ A dash indicates that data were not recorded.
‖ Data not recorded, but calculated as 90% of total New Zealand Danish seine landings, from 1937-40, 1944 relationship; totals rounded to nearest 100 cwt.
¶ Data from Table 21.

**TABLE 21: Catch and catch per effort of Hauraki Gulf snapper, by method, 1960-71**

**A: Calendar year totals of all methods**

| | 1960 | 1961 | 1962 | 1963 | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Trawl** | | | | | | | | | | | | |
| Catch | 25 363 | 17 465 | 15 874 | 19 623 | 27 772 | 23 991 | 26 665 | 35 345 | 35 645 | 34 208 | 32 786 | 39 130 |
| % of total Gulf snapper | 43 | 37 | 30 | 35 | 49 | 47 | 42 | 51 | 39 | 35 | 27 | 28 |
| No. of boat-years | 12 | 11 | 8 | 9 | 11 | 12 | 13 | 12 | 12 | 13 | 14 | 15 |
| No. of trips | 461 | 391 | 303 | 397 | 44 | 458 | 499 | 473 | 465 | 464 | 480 | 521 |
| No. of days at sea | 2 826 | 2 246 | 1 583 | 2 010 | 2 242 | 2 506 | 2 946 | 2 547 | 2 548 | 2 486 | 2 615 | 2 899 |
| Catch per boat-year | 2 114 | 1 588 | 1 984 | 2 180 | 2 525 | 1 999 | 2 051 | 2 945 | 2 970 | 2 631 | 2 342 | 2 609 |
| Catch per trip | 55.0 | 44.7 | 52.4 | 49.4 | 62.1 | 52.4 | 53.4 | 74.7 | 76.7 | 73.7 | 68.3 | 75.1 |
| Catch per day | 9.0 | 7.8 | 10.0 | 9.8 | 12.4 | 9.6 | 9.1 | 13.9 | 14.0 | 13.8 | 12.5 | 13.5 |
| Days per trip | 6.1 | 5.7 | 5.2 | 5.1 | 5.0 | 5.5 | 5.9 | 5.4 | 5.5 | 5.4 | 5.4 | 5.6 |
| No. of trips per boat | 38 | 36 | 38 | 44 | 41 | 38 | 38 | 39 | 39 | 36 | 34 | 35 |
| **Danish seine** | | | | | | | | | | | | |
| Catch | 17 476 | 14 591 | 18 888 | 18 140 | 12 645 | 12 655 | 18 724 | 17 116 | 32 641 | 46 625 | 68 097 | 80 152 |
| % of total Gulf snapper | 30 | 30 | 36 | 33 | 22 | 25 | 29 | 25 | 36 | 47 | 56 | 58 |
| No. of boat-years | 10 | 10 | 9 | 9 | 7 | 8 | 10 | 9 | 10 | 14 | 26 | 31 |
| No. of trips | 397 | 378 | 372 | 366 | 295 | 338 | 424 | 380 | 447 | 752 | 1 170 | 1 287 |
| No. of days at sea | 1 610 | 1 627 | 1 597 | 1 634 | 1 379 | 1 409 | 1 694 | 1 619 | 1 668 | 2 080 | 3 607 | 4 381 |
| Catch per boat-year | 1 748 | 1 459 | 2 099 | 2 016 | 1 806 | 1 582 | 1 872 | 1 902 | 3 264 | 3 330 | 2 619 | 2 586 |
| Catch per trip | 44.0 | 38.6 | 50.8 | 49.6 | 42.9 | 37.4 | 44.2 | 45.0 | 73.0 | 62.0 | 58.2 | 62.3 |
| Catch per day | 10.9 | 9.0 | 11.8 | 11.1 | 9.2 | 9.0 | 11.1 | 10.6 | 19.6 | 22.4 | 18.9 | 18.3 |
| Days per trip | 4.1 | 4.3 | 4.3 | 4.5 | 4.7 | 4.2 | 4.0 | 4.3 | 3.7 | 2.8 | 3.1 | 3.4 |
| No. of trips per boat | 40 | 38 | 41 | 41 | 42 | 42 | 42 | 42 | 45 | 54 | 45 | 42 |
| **Long-line** | | | | | | | | | | | | |
| Catch | 9 908 | 9 084 | 9 398 | 8 118 | 7 183 | 6 945 | 9 751 | 11 539 | 14 587 | 11 773 | 13 423 | 13 290 |
| % of total Gulf snapper | 17 | 19 | 18 | 15 | 13 | 14 | 15 | 17 | 16 | 12 | 11 | 10 |
| No. of boat-years | 68 | 68 | 72 | 66 | 46 | 44 | 52 | 57 | 59 | 61 | 61 | 63 |
| No. of trips | 5 212 | 5 433 | 5 383 | 4 722 | 3 119 | 2 819 | 3 572 | 3 451 | 3 276 | 3 246 | 3 400 | 3 450 |
| No. of days at sea | 7 986 | 8 316 | 8 515 | 7 168 | 5 613 | 4 555 | 5 612 | 5 684 | 5 555 | 5 728 | 5 929 | 5 903 |
| Catch per boat-year | 146 | 134 | 131 | 123 | 156 | 158 | 188 | 202 | 247 | 193 | 220 | 211 |
| Catch per trip | 1.9 | 1.7 | 1.7 | 1.7 | 2.3 | 2.5 | 2.7 | 3.3 | 4.5 | 3.6 | 3.9 | 3.9 |
| Catch per day | 1.2 | 1.1 | 1.1 | 1.1 | 1.3 | 1.5 | 1.7 | 2.0 | 2.6 | 2.1 | 2.3 | 2.3 |
| Days per trip | 1.5 | 1.5 | 1.6 | 1.5 | 1.8 | 1.6 | 1.6 | 1.6 | 1.7 | 1.8 | 1.7 | 1.7 |
| No. of trips per boat | 77 | 80 | 75 | 72 | 68 | 64 | 69 | 61 | 56 | 53 | 56 | 55 |
| **Set net** | | | | | | | | | | | | |
| Catch | 6 330 | 6 791 | 8 307 | 9 496 | 9 513 | 7 010 | 8 595 | 5 026 | 8 903 | 6 017 | 8 210 | 6 761 |
| % of total Gulf snapper | 11 | 14 | 16 | 17 | 17 | 14 | 13 | 7 | 10 | 6 | 7 | 5 |
| No. of boat-years | 25 | 26 | 27 | 28 | 27 | 21 | 25 | 27 | 31 | 31 | 28 | 26 |
| No. of trips | 3 072 | 3 035 | 2 983 | 3 218 | 2 970 | 2 682 | 2 925 | 2 690 | 2 895 | 3 125 | 2 581 | 2 166 |
| No. of days at sea | 3 844 | 3 691 | 3 664 | 3 870 | 3 750 | 3 117 | 3 569 | 3 515 | 3 967 | 4 237 | 3 552 | 3 003 |
| Catch per boat-year | 253 | 261 | 308 | 339 | 352 | 334 | 344 | 186 | 287 | 194 | 293 | 260 |
| Catch per trip | 2.1 | 2.2 | 2.8 | 3.0 | 3.2 | 2.6 | 2.9 | 1.9 | 3.1 | 1.9 | 3.2 | 3.1 |
| Catch per day | 1.6 | 1.8 | 2.3 | 2.5 | 2.5 | 2.2 | 2.4 | 1.4 | 2.2 | 1.4 | 2.3 | 2.3 |
| Days per trip | 1.3 | 1.2 | 1.2 | 1.2 | 1.3 | 1.2 | 1.2 | 1.3 | 1.4 | 1.4 | 1.4 | 1.4 |
| No. of trips per boat | 123 | 117 | 110 | 115 | 110 | 128 | 117 | 100 | 93 | 101 | 92 | 83 |
| Total catch | 59 077 | 47 931 | 52 467 | 55 377 | 57 113 | 50 601 | 63 735 | 69 026 | 91 776 | 98 623 | 122 516 | 139 333 |

**TABLE 21: Catch and catch per effort of Hauraki Gulf snapper, by method, 1960-71 (continued)**

**B: Annual totals from July to June of Danish seining**

| | 1960-61 | 1961-62 | 1962-63 | 1963-64 | 1964-65 | 1965-66 | 1966-67 | 1967-68 | 1968-69 | 1969-70 | 1970-71 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Catch | 16 212 | 18 173 | 16 927 | 17 877 | 12 136 | 14 497 | 19 355 | 16 866 | 43 463 | 50 441 | 70 620 |
| No. of boat-years | 10 | 10 | 9 | 8 | 8 | 9 | 10 | 9 | 12 | 20 | 28 |
| No. of trips | 396 | 384 | 371 | 325 | 307 | 397 | 408 | 364 | 598 | 975 | 1 186 |
| No. of days at sea | 1 644 | 1 663 | 1 626 | 1 506 | 1 365 | 1 590 | 1 683 | 1 539 | 1 885 | 2 652 | 3 986 |
| Catch per boat-year | 1 621 | 1 817 | 1 881 | 2 235 | 1 517 | 1 611 | 1 936 | 1 874 | 3 622 | 2 522 | 2 522 |
| Catch per trip | 40.9 | 47.3 | 45.6 | 55.0 | 39.5 | 36.5 | 47.4 | 46.3 | 72.7 | 51.7 | 59.5 |
| Catch per day | 9.9 | 10.9 | 10.4 | 11.9 | 8.9 | 9.1 | 11.5 | 11.0 | 23.1 | 19.0 | 17.7 |
| Days per trip | 4.2 | 4.3 | 4.4 | 4.6 | 4.4 | 4.0 | 4.1 | 4.2 | 3.2 | 2.7 | 3.4 |
| No. of trips per boat | 40 | 38 | 41 | 41 | 38 | 44 | 41 | 40 | 50 | 49 | 42 |
| Catch per day (spring and summer) | 12.1 | 13.2 | 12.9 | 14.9 | 10.7 | 11.1 | 14.5 | 13.5 | 29.5 | 24.4 | 24.4 |

**TABLE 22: Seasonal totals of catch and catch per effort of Hauraki Gulf snapper, by method, 1960-71**

| | 1960 | | | | 1961 | | | | 1962 | | | | 1963 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Summer* | Autumn | Winter | Spring | Summer | Autumn | Winter | Spring | Summer | Autumn | Winter | Spring | Summer | Autumn | Winter | Spring |
| **Trawl** | | | | | | | | | | | | | | | | |
| Catch | 6 948 | 6 230 | 6 164 | 6 021 | 5 945 | 5 445 | 3 535 | 2 540 | 3 748 | 4 101 | 3 131 | 4 894 | 5 375 | 4 706 | 4 648 | 4 894 |
| No. of boats fishing | 12 | 13 | 13 | 11 | 14 | 13 | 10 | 6 | 6 | 8 | 8 | 9 | 8 | 9 | 10 | 10 |
| No. of trips | 111 | 123 | 130 | 97 | 116 | 122 | 98 | 55 | 54 | 80 | 76 | 93 | 84 | 107 | 107 | 99 |
| No. of days at sea | 666 | 748 | 798 | 614 | 651 | 761 | 572 | 262 | 289 | 412 | 407 | 475 | 317 | 567 | 588 | 538 |
| Catch per trip | 62.6 | 50.7 | 47.4 | 62.1 | 51.3 | 44.6 | 36.1 | 46.2 | 69.4 | 51.3 | 41.2 | 52.6 | 64.0 | 44.0 | 43.4 | 49.4 |
| Catch per day | 10.4 | 8.3 | 7.7 | 9.8 | 9.1 | 7.2 | 6.2 | 9.7 | 13.0 | 10.0 | 7.7 | 10.3 | 17.0 | 8.3 | 7.9 | 9.1 |
| Days per trip | 6.0 | 6.1 | 6.1 | 6.3 | 5.6 | 6.2 | 5.8 | 4.8 | 5.4 | 5.2 | 5.4 | 5.1 | 3.8 | 5.3 | 5.5 | 5.4 |
| No. of trips per boat | 9.3 | 9.5 | 10.0 | 8.8 | 8.3 | 9.4 | 9.8 | 9.2 | 9.0 | 10.0 | 9.5 | 10.3 | 10.5 | 11.9 | 10.7 | 9.9 |
| **Danish seine** | | | | | | | | | | | | | | | | |
| Catch | 2 943 | 2 463 | 4 964 | 7 107 | 2 674 | 1 467 | 3 214 | 7 236 | 4 961 | 2 762 | 4 131 | 7 034 | 2 994 | 2 768 | 4 219 | 8 159 |
| No. of boats fishing | 9 | 10 | 11 | 10 | 9 | 9 | 9 | 11 | 11 | 8 | 9 | 9 | 9 | 9 | 9 | 9 |
| No. of trips | 78 | 97 | 120 | 102 | 91 | 83 | 95 | 109 | 106 | 74 | 95 | 97 | 86 | 93 | 93 | 94 |
| No. of days at sea | 308 | 376 | 482 | 444 | 366 | 352 | 422 | 487 | 434 | 320 | 424 | 419 | 359 | 424 | 413 | 438 |
| Catch per trip | 37.7 | 25.4 | 41.4 | 69.7 | 29.4 | 17.7 | 33.8 | 66.4 | 46.8 | 37.3 | 43.5 | 72.5 | 34.8 | 29.8 | 45.4 | 86.8 |
| Catch per day | 9.6 | 6.6 | 10.3 | 16.0 | 7.3 | 4.2 | 7.6 | 14.9 | 11.4 | 8.6 | 9.7 | 16.8 | 8.3 | 6.5 | 10.2 | 18.6 |
| Days per trip | 3.9 | 3.9 | 4.0 | 4.4 | 4.0 | 4.2 | 4.4 | 4.5 | 4.1 | 4.3 | 4.5 | 4.3 | 4.2 | 4.6 | 4.4 | 4.7 |
| No. of trips per boat | 8.7 | 9.7 | 10.9 | 10.2 | 10.1 | 9.2 | 10.6 | 9.9 | 9.6 | 9.3 | 10.6 | 10.8 | 9.6 | 10.3 | 10.3 | 10.4 |
| **Long-line** | | | | | | | | | | | | | | | | |
| Catch | 1 865 | 2 331 | 2 711 | 3 001 | 2 057 | 2 360 | 2 200 | 2 467 | 2 312 | 2 298 | 2 362 | 2 425 | 1 824 | 2 302 | 1 869 | 2 123 |
| No. of boats fishing | 65 | 68 | 66 | 71 | 65 | 70 | 68 | 67 | 70 | 75 | 69 | 73 | 66 | 73 | 60 | 64 |
| No. of trips | 1 286 | 1 265 | 1 179 | 1 482 | 1 333 | 1 477 | 1 337 | 1 286 | 1 366 | 1 298 | 1 391 | 1 328 | 1 222 | 1 257 | 1 093 | 1 150 |
| No. of days at sea | 1 836 | 2 046 | 1 865 | 2 239 | 2 013 | 2 145 | 2 058 | 2 100 | 2 169 | 2 173 | 2 094 | 2 079 | 1 796 | 1 917 | 1 663 | 1 792 |
| Catch per trip | 1.5 | 1.8 | 2.3 | 2.0 | 1.5 | 1.6 | 1.6 | 1.9 | 1.7 | 1.8 | 1.7 | 1.8 | 1.5 | 1.8 | 1.7 | 1.8 |
| Catch per day | 1.0 | 1.1 | 1.5 | 1.3 | 1.0 | 1.1 | 1.1 | 1.2 | 1.1 | 1.1 | 1.1 | 1.2 | 1.0 | 1.2 | 1.1 | 1.2 |
| Days per trip | 1.4 | 1.6 | 1.6 | 1.5 | 1.5 | 1.5 | 1.5 | 1.6 | 1.6 | 1.7 | 1.5 | 1.6 | 1.5 | 1.5 | 1.5 | 1.6 |
| No. of trips per boat | 19.8 | 18.6 | 17.9 | 20.9 | 20.5 | 21.1 | 19.7 | 19.2 | 19.5 | 17.3 | 20.2 | 18.2 | 18.5 | 17.2 | 18.2 | 18.0 |
| **Set net** | | | | | | | | | | | | | | | | |
| Catch | 2 584 | 1 083 | 1 700 | 963 | 2 791 | 1 601 | 1 597 | 802 | 3 484 | 1 621 | 1 748 | 1 453 | 3 716 | 2 242 | 2 677 | 861 |
| No. of boats fishing | 30 | 24 | 21 | 24 | 32 | 24 | 20 | 28 | 36 | 25 | 21 | 25 | 35 | 27 | 23 | 28 |
| No. of trips | 964 | 659 | 664 | 785 | 977 | 631 | 523 | 904 | 1 104 | 622 | 526 | 731 | 1 054 | 761 | 648 | 755 |
| No. of days at sea | 1 199 | 870 | 820 | 955 | 1 199 | 771 | 652 | 1 069 | 1 311 | 771 | 710 | 872 | 1 265 | 896 | 752 | 957 |
| Catch per trip | 2.7 | 1.6 | 2.6 | 1.2 | 2.9 | 2.5 | 3.1 | 0.9 | 3.2 | 2.6 | 3.3 | 2.0 | 3.5 | 2.9 | 4.1 | 1.1 |
| Catch per day | 2.2 | 1.2 | 2.1 | 1.0 | 2.3 | 2.1 | 2.4 | 0.8 | 2.7 | 2.1 | 2.5 | 1.7 | 2.9 | 2.5 | 3.6 | 0.9 |
| Days per trip | 1.2 | 1.3 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.3 | 1.2 | 1.2 | 1.2 | 1.2 | 1.3 |
| No. of trips per boat | 32.1 | 27.5 | 31.6 | 32.7 | 30.5 | 26.3 | 26.2 | 32.3 | 30.7 | 24.9 | 25.0 | 29.2 | 30.1 | 28.2 | 28.2 | 27.0 |

* Summer is January, February, and March.

**TABLE 22: Seasonal totals of catch and catch per effort of Hauraki Gulf snapper, by method, 1960-71 (continued)**

| | 1964 | | | | 1965 | | | | 1966 | | | | 1967 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Trawl** | Summer | Autumn | Winter | Spring | Summer | Autumn | Winter | Spring | Summer | Autumn | Winter | Spring | Summer | Autumn | Winter | Spring |
| Catch | 5 708 | 6 327 | 7 262 | 8 475 | 7 866 | 5 079 | 5 142 | 5 905 | 5 220 | 7 704 | 7 079 | 6 662 | 7 316 | 10 505 | 10 234 | 7 290 |
| No. of boats fishing | 9 | 13 | 11 | 9 | 12 | 11 | 12 | 12 | 10 | 18 | 14 | 11 | 12 | 13 | 13 | 12 |
| No. of trips | 91 | 132 | 117 | 107 | 115 | 96 | 131 | 116 | 97 | 168 | 145 | 89 | 96 | 131 | 138 | 108 |
| No. of days at sea | 488 | 661 | 594 | 499 | 596 | 512 | 732 | 666 | 565 | 1 001 | 851 | 529 | 570 | 740 | 710 | 527 |
| Catch per trip | 62.7 | 47.9 | 62.1 | 79.2 | 68.4 | 52.9 | 39.3 | 50.9 | 53.8 | 45.9 | 48.8 | 74.9 | 76.2 | 80.2 | 74.2 | 67.5 |
| Catch per day | 11.7 | 9.6 | 12.2 | 17.0 | 13.2 | 9.9 | 7.0 | 8.9 | 9.2 | 7.7 | 8.3 | 12.6 | 12.8 | 14.2 | 14.4 | 13.8 |
| Days per trip | 5.4 | 5.0 | 5.1 | 4.7 | 5.2 | 5.3 | 5.6 | 5.7 | 5.8 | 6.0 | 5.9 | 5.9 | 5.9 | 5.6 | 5.1 | 4.9 |
| No. of trips per boat | 10.1 | 10.2 | 10.6 | 11.9 | 9.6 | 8.7 | 10.9 | 9.7 | 9.7 | 9.3 | 10.4 | 8.1 | 8.0 | 10.1 | 10.6 | 9.0 |
| **Danish seine** | | | | | | | | | | | | | | | | |
| Catch | 3 353 | 2 146 | 1 859 | 5 288 | 2 810 | 2 179 | 2 074 | 5 593 | 3 458 | 3 372 | 3 492 | 8 402 | 3 865 | 3 596 | 3 130 | 6 525 |
| No. of boats fishing | 8 | 6 | 7 | 8 | 9 | 7 | 7 | 10 | 9 | 11 | 9 | 11 | 10 | 9 | 9 | 10 |
| No. of trips | 71 | 67 | 67 | 90 | 82 | 68 | 84 | 104 | 101 | 108 | 108 | 107 | 94 | 99 | 90 | 97 |
| No. of days at sea | 333 | 322 | 326 | 398 | 358 | 283 | 327 | 441 | 374 | 448 | 404 | 468 | 378 | 433 | 386 | 422 |
| Catch per trip | 47.2 | 32.0 | 27.7 | 58.8 | 34.3 | 32.0 | 24.7 | 53.8 | 34.2 | 31.2 | 32.3 | 78.5 | 41.1 | 36.3 | 34.8 | 67.3 |
| Catch per day | 10.1 | 6.7 | 5.7 | 13.3 | 7.9 | 7.7 | 6.3 | 12.7 | 9.2 | 7.5 | 8.6 | 18.0 | 10.9 | 8.3 | 8.1 | 15.5 |
| Days per trip | 4.7 | 4.8 | 4.9 | 4.4 | 4.4 | 4.2 | 3.9 | 4.2 | 3.7 | 4.1 | 3.7 | 4.4 | 4.0 | 4.4 | 4.3 | 4.4 |
| No. of trips per boat | 8.9 | 11.2 | 9.6 | 11.3 | 9.1 | 9.7 | 12.0 | 10.4 | 11.2 | 9.8 | 12.0 | 9.7 | 9.4 | 11.0 | 10.0 | 9.7 |
| **Long-line** | | | | | | | | | | | | | | | | |
| Catch | 1 811 | 1 769 | 1 393 | 2 209 | 1 436 | 1 490 | 1 571 | 2 448 | 1 764 | 2 686 | 2 490 | 2 810 | 2 491 | 2 775 | 2 834 | 3 439 |
| No. of boats fishing | 48 | 55 | 38 | 43 | 44 | 47 | 34 | 52 | 45 | 56 | 51 | 57 | 57 | 55 | 58 | 59 |
| No. of trips | 862 | 887 | 646 | 724 | 647 | 728 | 552 | 892 | 833 | 979 | 862 | 898 | 824 | 852 | 860 | 915 |
| No. of days at sea | 1 460 | 1 636 | 1 175 | 1 342 | 1 127 | 1 186 | 910 | 1 332 | 1 145 | 1 528 | 1 464 | 1 475 | 1 358 | 1 457 | 1 409 | 1 460 |
| Catch per trip | 2.1 | 2.0 | 2.2 | 3.1 | 2.2 | 2.0 | 2.8 | 2.7 | 2.1 | 2.7 | 2.9 | 3.1 | 3.0 | 3.3 | 3.3 | 3.8 |
| Catch per day | 1.2 | 1.1 | 1.2 | 1.6 | 1.3 | 1.3 | 1.7 | 1.8 | 1.5 | 1.8 | 1.7 | 1.9 | 1.8 | 1.9 | 2.0 | 2.4 |
| Days per trip | 1.7 | 1.8 | 1.8 | 1.9 | 1.7 | 1.6 | 1.6 | 1.5 | 1.4 | 1.6 | 1.7 | 1.6 | 1.6 | 1.7 | 1.6 | 1.6 |
| No. of trips per boat | 18.0 | 16.1 | 17.0 | 16.8 | 14.7 | 15.5 | 16.2 | 17.2 | 18.5 | 17.5 | 16.9 | 15.8 | 14.5 | 15.5 | 14.8 | 15.5 |
| **Set net** | | | | | | | | | | | | | | | | |
| Catch | 3 153 | 2 765 | 2 821 | 775 | 2 409 | 1 500 | 2 119 | 982 | 2 743 | 1 836 | 2 517 | 1 499 | 1 520 | 1 194 | 1 409 | 903 |
| No. of boats fishing | 32 | 29 | 24 | 23 | 27 | 20 | 19 | 18 | 29 | 25 | 22 | 23 | 29 | 27 | 27 | 26 |
| No. of trips | 913 | 705 | 663 | 689 | 844 | 647 | 582 | 609 | 840 | 653 | 786 | 646 | 742 | 658 | 692 | 598 |
| No. of days at sea | 1 148 | 913 | 842 | 847 | 976 | 724 | 710 | 707 | 990 | 823 | 900 | 856 | 880 | 896 | 900 | 839 |
| Catch per trip | 3.5 | 3.9 | 4.3 | 1.1 | 2.9 | 2.3 | 3.6 | 1.6 | 3.3 | 2.8 | 3.2 | 2.3 | 2.0 | 1.8 | 2.0 | 1.5 |
| Catch per day | 2.7 | 3.0 | 3.4 | 0.9 | 2.5 | 2.1 | 3.0 | 1.4 | 2.8 | 2.2 | 2.8 | 1.8 | 1.7 | 1.3 | 1.6 | 1.1 |
| Days per trip | 1.3 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.2 | 1.2 | 1.2 | 1.3 | 1.1 | 1.3 | 1.2 | 1.4 | 1.3 | 1.4 |
| No. of trips per boat | 28.5 | 24.3 | 27.6 | 30.0 | 31.3 | 32.4 | 30.6 | 33.8 | 29.0 | 26.1 | 35.7 | 28.1 | 25.6 | 24.4 | 25.6 | 23.0 |

**TABLE 22: Seasonal totals of catch and catch per effort of Hauraki Gulf snapper, by method, 1960-71 (continued)**

| | 1968 | | | | 1969 | | | | 1970 | | | | 1971 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Summer | Autumn | Winter | Spring | Summer | Autumn | Winter | Spring | Summer | Autumn | Winter | Spring | Summer | Autumn | Winter | Spring |
| **Trawl** | | | | | | | | | | | | | | | | |
| Catch | 7 720 | 8 109 | 8 476 | 11 341 | 9 534 | 6 389 | 5 920 | 12 364 | 8 310 | 6 798 | 6 804 | 10 874 | 10 384 | 10 455 | 8 425 | 9 866 |
| No. of boats fishing | 12 | 13 | 10 | 12 | 14 | 12 | 13 | 14 | 12 | 13 | 14 | 15 | 15 | 18 | 16 | 13 |
| No. of trips | 126 | 127 | 96 | 116 | 120 | 112 | 96 | 136 | 110 | 111 | 120 | 139 | 129 | 162 | 134 | 96 |
| No. of days at sea | 652 | 700 | 559 | 637 | 679 | 623 | 512 | 672 | 598 | 639 | 628 | 750 | 700 | 895 | 754 | 550 |
| Catch per trip | 61.3 | 63.9 | 88.3 | 97.8 | 79.5 | 57.0 | 61.7 | 90.9 | 75.5 | 61.2 | 56.7 | 78.2 | 80.5 | 64.5 | 62.9 | 102.8 |
| Catch per day | 11.8 | 11.6 | 15.2 | 17.8 | 14.0 | 10.3 | 11.6 | 18.4 | 13.9 | 10.6 | 10.8 | 14.5 | 14.8 | 11.7 | 11.2 | 17.9 |
| Days per trip | 5.2 | 5.5 | 5.8 | 5.5 | 5.7 | 5.6 | 5.3 | 4.9 | 5.4 | 5.8 | 5.2 | 5.4 | 5.4 | 5.5 | 5.6 | 5.7 |
| No. of trips per boat | 10.5 | 9.8 | 9.6 | 9.7 | 8.6 | 9.3 | 7.4 | 9.7 | 9.2 | 8.5 | 8.6 | 9.3 | 8.6 | 9.0 | 8.4 | 7.4 |
| **Danish seine** | | | | | | | | | | | | | | | | |
| Catch | 4 709 | 2 502 | 8 565 | 16 866 | 12 374 | 5 658 | 8 474 | 20 119 | 13 367 | 8 481 | 6 902 | 39 347 | 16 695 | 7 676 | 13 578 | 42 203 |
| No. of boats fishing | 10 | 8 | 10 | 12 | 13 | 12 | 15 | 17 | 25 | 24 | 21 | 33 | 32 | 25 | 29 | 35 |
| No. of trips | 99 | 78 | 114 | 156 | 181 | 147 | 173 | 251 | 306 | 245 | 209 | 410 | 314 | 253 | 254 | 466 |
| No. of days at sea | 411 | 320 | 432 | 505 | 486 | 462 | 459 | 673 | 700 | 820 | 773 | 1 314 | 979 | 920 | 1 000 | 1 482 |
| Catch per trip | 47.6 | 32.1 | 75.1 | 108.1 | 68.4 | 38.5 | 49.0 | 80.2 | 43.7 | 34.6 | 33.0 | 96.0 | 53.2 | 30.3 | 53.5 | 90.6 |
| Catch per day | 11.5 | 7.8 | 19.8 | 33.4 | 25.5 | 12.2 | 18.5 | 29.9 | 19.1 | 10.3 | 8.9 | 29.9 | 17.1 | 8.3 | 13.6 | 28.5 |
| Days per trip | 4.2 | 4.1 | 3.8 | 3.2 | 2.7 | 3.1 | 2.7 | 2.7 | 2.3 | 3.3 | 3.7 | 3.2 | 3.1 | 3.6 | 3.9 | 3.2 |
| No. of trips per boat | 9.9 | 9.8 | 11.4 | 13.0 | 13.9 | 12.3 | 11.5 | 14.8 | 12.2 | 10.2 | 10.0 | 12.4 | 9.8 | 10.1 | 8.8 | 13.3 |
| **Long-line** | | | | | | | | | | | | | | | | |
| Catch | 2 898 | 3 017 | 4 110 | 4 561 | 2 704 | 2 720 | 2 459 | 3 890 | 2 899 | 3 347 | 2 978 | 4 199 | 3 431 | 3 303 | 3 154 | 3 403 |
| No. of boats fishing | 58 | 65 | 54 | 58 | 59 | 61 | 58 | 68 | 61 | 62 | 57 | 66 | 64 | 63 | 61 | 63 |
| No. of trips | 863 | 825 | 770 | 818 | 733 | 818 | 771 | 924 | 792 | 868 | 809 | 931 | 862 | 898 | 801 | 889 |
| No. of days at sea | 1 331 | 1 449 | 1 376 | 1 399 | 1 283 | 1 446 | 1 411 | 1 588 | 1 306 | 1 575 | 1 451 | 1 597 | 1 376 | 1 561 | 1 431 | 1 535 |
| Catch per trip | 3.4 | 3.7 | 5.3 | 5.6 | 3.7 | 3.3 | 3.2 | 4.2 | 3.7 | 3.9 | 3.7 | 4.5 | 4.0 | 3.7 | 3.9 | 3.8 |
| Catch per day | 2.2 | 2.1 | 3.0 | 3.3 | 2.1 | 1.9 | 1.7 | 2.5 | 2.2 | 2.1 | 2.1 | 2.6 | 2.5 | 2.1 | 2.2 | 2.2 |
| Days per trip | 1.5 | 1.8 | 1.8 | 1.7 | 1.8 | 1.8 | 1.8 | 1.7 | 1.6 | 1.8 | 1.8 | 1.7 | 1.6 | 1.7 | 1.8 | 1.7 |
| No. of trips per boat | 14.9 | 12.7 | 14.3 | 14.1 | 12.4 | 13.4 | 13.3 | 13.6 | 13.0 | 14.0 | 14.2 | 14.1 | 13.5 | 14.3 | 13.1 | 14.1 |
| **Set net** | | | | | | | | | | | | | | | | |
| Catch | 1 883 | 1 785 | 3 798 | 1 437 | 2 088 | 1 150 | 1 936 | 844 | 2 689 | 2 209 | 1 747 | 1 565 | 2 682 | 1 576 | 1 698 | 805 |
| No. of boats fishing | 36 | 27 | 30 | 30 | 36 | 25 | 30 | 31 | 36 | 30 | 20 | 24 | 32 | 29 | 23 | 20 |
| No. of trips | 832 | 581 | 732 | 750 | 907 | 625 | 751 | 842 | 815 | 662 | 527 | 577 | 662 | 581 | 513 | 410 |
| No. of days at sea | 1 109 | 782 | 1 009 | 1 067 | 1 230 | 818 | 1 073 | 1 116 | 1 127 | 889 | 734 | 802 | 962 | 893 | 623 | 525 |
| Catch per trip | 2.3 | 3.1 | 5.2 | 1.9 | 2.3 | 1.8 | 2.6 | 1.0 | 3.3 | 3.3 | 3.3 | 2.7 | 4.1 | 2.7 | 3.3 | 2.0 |
| Catch per day | 1.7 | 2.3 | 3.8 | 1.3 | 1.7 | 1.4 | 1.8 | 0.8 | 2.4 | 2.5 | 2.4 | 2.0 | 2.8 | 1.8 | 2.7 | 1.5 |
| Days per trip | 1.3 | 1.3 | 1.4 | 1.4 | 1.4 | 1.3 | 1.4 | 1.3 | 1.4 | 1.3 | 1.4 | 1.4 | 1.5 | 1.5 | 1.2 | 1.3 |
| No. of trips per boat | 23.1 | 21.5 | 24.4 | 25.0 | 25.2 | 25.0 | 25.0 | 27.2 | 22.6 | 22.1 | 26.4 | 24.0 | 20.7 | 20.0 | 22.3 | 20.5 |

**TABLE 23: Mean seasonal totals for all years combined of catch and catch per effort of Hauraki Gulf snapper, by method, 1960-71**

| **Trawl** | Summer | Autumn | Winter | Spring |
|---|---|---|---|---|
| Catch | 7 006 | 6 821 | 6 402 | 7 594 |
| No. of boats fishing | 11 | 13 | 12 | 11 |
| No. of trips | 104 | 123 | 116 | 104 |
| No. of days at sea | 564 | 688 | 642 | 560 |
| Catch per boat-season | 637 | 525 | 534 | 690 |
| Catch per trip | 67.4 | 55.5 | 55.2 | 73.0 |
| Catch per day at sea | 12.4 | 9.9 | 10.0 | 13.6 |
| Days per trip | 5.4 | 5.6 | 5.5 | 5.4 |
| No. of trips per boat | 9.5 | 9.5 | 9.7 | 9.5 |
| **Danish seine** | | | | |
| Catch | 6 184 | 3 757 | 5 384 | 14 490 |
| No. of boats fishing | 13 | 12 | 12 | 15 |
| No. of trips | 134 | 118 | 125 | 174 |
| No. of days at sea | 457 | 457 | 487 | 624 |
| Catch per boat-season | 476 | 313 | 449 | 966 |
| Catch per trip | 46.2 | 31.8 | 43.1 | 83.3 |
| Catch per day at sea | 13.5 | 8.2 | 11.1 | 23.2 |
| Days per trip | 3.4 | 3.9 | 3.9 | 3.6 |
| No. of trips per boat | 10.3 | 9.8 | 10.4 | 11.6 |
| **Long-line** | | | | |
| Catch | 2 291 | 2 533 | 2 511 | 3 081 |
| No. of boats fishing | 59 | 63 | 56 | 62 |
| No. of trips | 969 | 1 013 | 923 | 1 020 |
| No. of days at sea | 1 517 | 1 677 | 1 526 | 1 662 |
| Catch per boat-season | 39 | 40 | 45 | 50 |
| Catch per trip | 2.4 | 2.5 | 2.7 | 3.0 |
| Catch per day at sea | 1.5 | 1.5 | 1.6 | 1.9 |
| Days per trip | 1.6 | 1.7 | 1.7 | 1.6 |
| No. of trips per boat | 16.4 | 16.1 | 16.5 | 16.5 |
| **Set net** | | | | |
| Catch | 2 645 | 1 714 | 2 147 | 1 074 |
| No. of boats fishing | 33 | 26 | 23 | 25 |
| No. of trips | 888 | 649 | 634 | 691 |
| No. of days at sea | 1 116 | 837 | 810 | 884 |
| Catch per boat-season | 80 | 66 | 93 | 43 |
| Catch per trip | 3.0 | 2.6 | 3.4 | 1.6 |
| Catch per day at sea | 2.4 | 2.0 | 2.7 | 1.2 |
| Days per trip | 1.3 | 1.3 | 1.3 | 1.3 |
| No. of trips per boat | 26.9 | 25.0 | 27.6 | 27.6 |

**TABLE 24: Catch and catch per effort of Hauraki Gulf snapper, by month, 1960-71**

| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 1960 | | | | | | |
| **Trawl** | | | | | | | | | | | | |
| No. of boats | 11 | 11 | 14 | 12 | 13 | 13 | 11 | 14 | 14 | 14 | 10 | 8 |
| Total days | 181 | 207 | 278 | 212 | 267 | 269 | 206 | 298 | 294 | 288 | 184 | 142 |
| Total trips | 28 | 34 | 49 | 35 | 44 | 44 | 32 | 48 | 50 | 44 | 29 | 24 |
| Catch | 1 709 | 2 309 | 2 929 | 1 808 | 2 104 | 2 317 | 1 710 | 2 272 | 2 182 | 3 154 | 1 781 | 1 086 |
| Catch per day | 9.4 | 11.2 | 10.5 | 8.5 | 7.9 | 8.6 | 8.3 | 7.6 | 7.4 | 11.0 | 9.7 | 7.6 |
| Catch per trip | 61.0 | 67.9 | 59.8 | 51.7 | 47.8 | 52.7 | 53.4 | 47.3 | 43.6 | 71.7 | 61.4 | 45.3 |
| **Danish seine** | | | | | | | | | | | | |
| No. of boats | 9 | 12 | 7 | 11 | 9 | 9 | 11 | 12 | 9 | 11 | 11 | 9 |
| Total days | 85 | 140 | 83 | 126 | 130 | 120 | 163 | 194 | 125 | 157 | 177 | 110 |
| Total trips | 20 | 36 | 22 | 31 | 32 | 34 | 40 | 49 | 31 | 38 | 40 | 24 |
| Catch | 883 | 1 349 | 710 | 705 | 938 | 819 | 1 890 | 1 833 | 1 241 | 3 221 | 2 851 | 1 035 |
| Catch per day | 10.4 | 9.6 | 8.6 | 5.6 | 7.2 | 6.8 | 11.6 | 9.4 | 9.9 | 20.5 | 16.1 | 9.4 |
| Catch per trip | 44.2 | 37.5 | 32.3 | 22.7 | 29.3 | 24.1 | 47.3 | 37.4 | 40.0 | 84.8 | 71.3 | 43.1 |
| **Long-line** | | | | | | | | | | | | |
| No. of boats | 61 | 62 | 71 | 74 | 63 | 66 | 69 | 63 | 67 | 75 | 69 | 70 |
| Total days | 564 | 593 | 679 | 799 | 583 | 664 | 692 | 606 | 567 | 825 | 712 | 702 |
| Total trips | 419 | 410 | 457 | 533 | 369 | 363 | 422 | 392 | 365 | 535 | 460 | 487 |
| Catch | 536 | 577 | 749 | 755 | 658 | 919 | 1 202 | 737 | 772 | 1 167 | 942 | 892 |
| Catch per day | 1.0 | 1.0 | 1.1 | 0.9 | 1.1 | 1.4 | 1.7 | 1.2 | 1.4 | 1.4 | 1.3 | 1.3 |
| Catch per trip | 1.3 | 1.4 | 1.6 | 1.4 | 1.8 | 2.5 | 2.8 | 1.9 | 2.1 | 2.2 | 2.0 | 1.8 |
| **Set net** | | | | | | | | | | | | |
| No. of boats | 33 | 28 | 29 | 28 | 25 | 18 | 14 | 23 | 27 | 28 | 22 | 23 |
| Total days | 396 | 363 | 440 | 378 | 285 | 207 | 165 | 336 | 319 | 380 | 295 | 280 |
| Total trips | 330 | 290 | 344 | 275 | 208 | 176 | 146 | 274 | 244 | 299 | 253 | 233 |
| Catch | 781 | 785 | 1 018 | 320 | 466 | 297 | 495 | 483 | 722 | 615 | 222 | 126 |
| Catch per day | 2.0 | 2.2 | 2.3 | 0.8 | 1.6 | 1.4 | 3.0 | 1.4 | 2.3 | 1.6 | 0.8 | 0.5 |
| Catch per trip | 2.4 | 2.7 | 3.0 | 1.2 | 2.2 | 1.7 | 3.4 | 1.8 | 3.0 | 2.1 | 0.9 | 0.5 |
| Total catch | 3 909 | 5 020 | 5 406 | 3 588 | 4 166 | 4 352 | 5 297 | 5 325 | 4 917 | 8 157 | 5 796 | 3 139 |
| | | | | | | 1961 | | | | | | |
| **Trawl** | | | | | | | | | | | | |
| No. of boats | 13 | 17 | 11 | 12 | 12 | 16 | 12 | 10 | 7 | 5 | 6 | 6 |
| Total days | 169 | 269 | 213 | 220 | 274 | 267 | 243 | 212 | 117 | 91 | 89 | 82 |
| Total trips | 28 | 46 | 42 | 34 | 44 | 44 | 37 | 38 | 23 | 20 | 19 | 16 |
| Catch | 1 961 | 1 749 | 2 236 | 1 660 | 1 666 | 2 119 | 1 565 | 1 193 | 778 | 681 | 1 270 | 588 |
| Catch per day | 11.6 | 6.5 | 10.5 | 7.5 | 6.1 | 7.9 | 6.4 | 5.6 | 6.6 | 7.5 | 14.3 | 7.2 |
| Catch per trip | 70.0 | 38.0 | 53.2 | 48.8 | 37.9 | 48.2 | 42.3 | 31.4 | 33.8 | 34.1 | 66.8 | 36.8 |
| **Danish seine** | | | | | | | | | | | | |
| No. of boats | 10 | 8 | 10 | 8 | 9 | 11 | 9 | 10 | 9 | 11 | 11 | 10 |
| Total days | 100 | 100 | 166 | 93 | 118 | 141 | 129 | 172 | 121 | 199 | 179 | 109 |
| Total trips | 26 | 23 | 42 | 21 | 27 | 35 | 31 | 35 | 29 | 43 | 40 | 26 |
| Catch | 783 | 863 | 1 029 | 377 | 426 | 663 | 965 | 1 170 | 1 080 | 3 002 | 2 686 | 1 548 |
| Catch per day | 7.8 | 8.6 | 6.2 | 4.1 | 3.6 | 4.7 | 7.5 | 6.8 | 8.9 | 15.1 | 15.0 | 14.2 |
| Catch per trip | 30.1 | 37.5 | 24.5 | 18.0 | 15.8 | 18.9 | 31.1 | 33.4 | 37.2 | 69.8 | 67.2 | 59.5 |
| **Long-line** | | | | | | | | | | | | |
| No. of boats | 62 | 64 | 69 | 73 | 67 | 71 | 67 | 70 | 68 | 73 | 66 | 62 |
| Total days | 518 | 714 | 781 | 795 | 675 | 675 | 669 | 683 | 676 | 812 | 739 | 549 |
| Total trips | 361 | 479 | 493 | 565 | 453 | 459 | 438 | 448 | 451 | 512 | 445 | 329 |
| Catch | 505 | 792 | 760 | 803 | 811 | 746 | 729 | 715 | 756 | 979 | 887 | 602 |
| Catch per day | 1.0 | 1.1 | 1.0 | 1.0 | 1.2 | 1.1 | 1.1 | 1.0 | 1.1 | 1.2 | 1.2 | 1.1 |
| Catch per trip | 1.4 | 1.7 | 1.5 | 1.4 | 1.8 | 1.6 | 1.7 | 1.6 | 1.7 | 1.9 | 2.0 | 1.8 |
| **Set net** | | | | | | | | | | | | |
| No. of boats | 32 | 35 | 29 | 25 | 26 | 22 | 17 | 19 | 23 | 26 | 27 | 30 |
| Total days | 337 | 430 | 432 | 309 | 268 | 194 | 161 | 223 | 268 | 384 | 325 | 360 |
| Total trips | 285 | 347 | 345 | 245 | 228 | 158 | 133 | 170 | 220 | 317 | 278 | 309 |
| Catch | 531 | 1 117 | 1 143 | 1 036 | 278 | 287 | 351 | 628 | 617 | 469 | 164 | 170 |
| Catch per day | 1.6 | 2.6 | 2.6 | 3.4 | 1.0 | 1.5 | 2.2 | 2.8 | 2.3 | 1.2 | 0.5 | 0.5 |
| Catch per trip | 1.9 | 3.2 | 3.3 | 4.2 | 1.2 | 1.8 | 2.6 | 3.7 | 2.8 | 1.5 | 0.6 | 0.6 |
| Total catch | 3 780 | 4 521 | 5 168 | 3 876 | 3 181 | 3 815 | 3 610 | 3 706 | 3 231 | 5 131 | 5 007 | 2 908 |

**TABLE 24: Catch and catch per effort of Hauraki Gulf snapper, by month, 1960-71 (continued)**

| | 1962 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| **Trawl** | | | | | | | | | | | | |
| No. of boats | 5 | 6 | 7 | 7 | 8 | 9 | 10 | 6 | 8 | 10 | 8 | 8 |
| Total days | 81 | 99 | 109 | 110 | 142 | 160 | 178 | 100 | 129 | 201 | 163 | 111 |
| Total trips | 14 | 19 | 21 | 21 | 30 | 29 | 33 | 19 | 24 | 39 | 31 | 23 |
| Catch | 735 | 1 071 | 1 942 | 922 | 1 583 | 1 596 | 1 441 | 499 | 1 191 | 2 019 | 1 774 | 1 102 |
| Catch per day | 9.1 | 10.8 | 17.8 | 8.4 | 11.1 | 10.0 | 8.1 | 5.0 | 9.2 | 10.0 | 10.9 | 9.9 |
| Catch per trip | 52.5 | 56.4 | 92.5 | 43.9 | 52.8 | 55.0 | 43.7 | 26.3 | 49.6 | 51.8 | 57.2 | 47.9 |
| **Danish seine** | | | | | | | | | | | | |
| No. of boats | 11 | 11 | 10 | 8 | 9 | 8 | 9 | 8 | 9 | 9 | 9 | 9 |
| Total days | 157 | 164 | 113 | 109 | 113 | 98 | 144 | 150 | 130 | 170 | 147 | 102 |
| Total trips | 41 | 39 | 26 | 25 | 26 | 23 | 31 | 34 | 30 | 39 | 33 | 25 |
| Catch | 1 892 | 2 025 | 1 044 | 1 003 | 859 | 899 | 1 305 | 1 471 | 1 355 | 2 742 | 2 538 | 1 754 |
| Catch per day | 12.1 | 12.3 | 9.2 | 9.2 | 7.6 | 9.2 | 9.1 | 9.8 | 10.4 | 16.1 | 17.3 | 17.2 |
| Catch per trip | 46.1 | 51.9 | 40.2 | 40.1 | 33.0 | 39.1 | 42.1 | 43.3 | 45.2 | 70.3 | 76.9 | 70.2 |
| **Long-line** | | | | | | | | | | | | |
| No. of boats | 64 | 68 | 79 | 76 | 77 | 73 | 67 | 67 | 73 | 79 | 72 | 67 |
| Total days | 631 | 733 | 805 | 671 | 738 | 764 | 668 | 699 | 727 | 774 | 715 | 590 |
| Total trips | 369 | 474 | 523 | 415 | 463 | 420 | 444 | 460 | 487 | 482 | 478 | 368 |
| Catch | 563 | 696 | 1 053 | 773 | 901 | 624 | 653 | 822 | 888 | 870 | 835 | 720 |
| Catch per day | 0.9 | 0.9 | 1.3 | 1.2 | 1.2 | 0.8 | 1.0 | 1.2 | 1.2 | 1.1 | 1.2 | 1.2 |
| Catch per trip | 1.5 | 1.5 | 2.0 | 1.9 | 1.9 | 1.5 | 1.5 | 1.8 | 1.8 | 1.8 | 1.7 | 2.0 |
| **Set net** | | | | | | | | | | | | |
| No. of boats | 37 | 35 | 37 | 29 | 23 | 23 | 19 | 19 | 24 | 24 | 25 | 25 |
| Total days | 443 | 427 | 441 | 279 | 241 | 251 | 232 | 210 | 268 | 329 | 283 | 260 |
| Total trips | 365 | 351 | 388 | 234 | 202 | 186 | 159 | 157 | 210 | 270 | 234 | 227 |
| Catch | 1 270 | 1 122 | 1 093 | 728 | 524 | 369 | 370 | 678 | 700 | 1 145 | 239 | 70 |
| Catch per day | 2.9 | 2.6 | 2.5 | 2.6 | 2.2 | 1.5 | 1.6 | 3.2 | 2.6 | 3.5 | 0.8 | 0.3 |
| Catch per trip | 3.5 | 3.2 | 2.8 | 3.1 | 2.6 | 2.0 | 2.3 | 4.3 | 3.3 | 4.2 | 1.0 | 0.3 |
| Total catch | 4 460 | 4 914 | 5 132 | 3 426 | 3 867 | 3 488 | 3 769 | 3 470 | 4 134 | 6 776 | 5 386 | 3 646 |

| | 1963 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| **Trawl** | | | | | | | | | | | | |
| No. of boats | 7 | 8 | 10 | 11 | 7 | 10 | 10 | 11 | 8 | 9 | 11 | 11 |
| Total days | 89 | 92 | 136 | 193 | 160 | 214 | 201 | 234 | 153 | 180 | 193 | 165 |
| Total trips | 20 | 28 | 36 | 41 | 29 | 37 | 37 | 40 | 30 | 32 | 34 | 33 |
| Catch | 1 318 | 1 928 | 2 129 | 1 611 | 1 250 | 1 846 | 1 550 | 1 455 | 1 644 | 1 788 | 1 636 | 1 469 |
| Catch per day | 14.8 | 21.0 | 15.7 | 8.3 | 7.8 | 8.6 | 7.7 | 6.2 | 10.7 | 9.9 | 8.5 | 8.9 |
| Catch per trip | 65.9 | 68.9 | 59.1 | 39.3 | 43.1 | 49.9 | 41.9 | 36.4 | 54.8 | 55.9 | 48.1 | 44.5 |
| **Danish seine** | | | | | | | | | | | | |
| No. of boats | 8 | 9 | 9 | 9 | 9 | 8 | 8 | 9 | 9 | 9 | 9 | 9 |
| Total days | 112 | 114 | 133 | 145 | 157 | 122 | 129 | 146 | 138 | 180 | 141 | 117 |
| Total trips | 27 | 29 | 30 | 32 | 34 | 27 | 28 | 35 | 30 | 39 | 30 | 25 |
| Catch | 1 216 | 889 | 889 | 1 016 | 980 | 772 | 999 | 1 698 | 1 522 | 3 407 | 2 629 | 2 122 |
| Catch per day | 10.9 | 7.8 | 6.7 | 7.0 | 6.2 | 6.3 | 7.7 | 11.6 | 11.0 | 18.9 | 18.6 | 18.1 |
| Catch per trip | 45.0 | 30.7 | 29.6 | 31.8 | 28.8 | 28.6 | 35.7 | 48.5 | 50.7 | 87.4 | 87.6 | 84.9 |
| **Long-line** | | | | | | | | | | | | |
| No. of boats | 68 | 61 | 68 | 73 | 74 | 73 | 55 | 62 | 63 | 73 | 64 | 55 |
| Total days | 591 | 541 | 664 | 673 | 677 | 567 | 452 | 609 | 602 | 721 | 597 | 474 |
| Total trips | 377 | 371 | 474 | 408 | 471 | 378 | 270 | 419 | 404 | 496 | 381 | 273 |
| Catch | 559 | 565 | 700 | 818 | 834 | 649 | 467 | 681 | 721 | 863 | 722 | 537 |
| Catch per day | 0.9 | 1.0 | 1.1 | 1.2 | 1.2 | 1.1 | 1.0 | 1.1 | 1.2 | 1.2 | 1.2 | 1.1 |
| Catch per trip | 1.5 | 1.5 | 1.5 | 2.0 | 1.8 | 1.7 | 1.7 | 1.6 | 1.8 | 1.7 | 1.9 | 2.0 |
| **Set net** | | | | | | | | | | | | |
| No. of boats | 33 | 37 | 34 | 31 | 27 | 22 | 24 | 21 | 24 | 26 | 28 | 29 |
| Total days | 441 | 406 | 418 | 376 | 274 | 246 | 224 | 237 | 291 | 364 | 272 | 321 |
| Total trips | 374 | 320 | 360 | 315 | 228 | 218 | 194 | 211 | 243 | 291 | 210 | 254 |
| Catch | 490 | 1 746 | 1 481 | 729 | 681 | 833 | 724 | 881 | 1 072 | 501 | 206 | 154 |
| Catch per day | 1.1 | 4.3 | 3.5 | 1.9 | 2.5 | 3.4 | 3.2 | 3.7 | 3.7 | 1.4 | 0.8 | 0.5 |
| Catch per trip | 1.3 | 5.5 | 4.1 | 2.3 | 3.0 | 3.8 | 3.7 | 4.2 | 4.4 | 1.7 | 1.0 | 0.6 |
| Total catch | 3 583 | 5 128 | 5 199 | 4 174 | 3 745 | 4 100 | 3 740 | 4 715 | 4 959 | 6 559 | 5 193 | 4 282 |

**TABLE 24: Catch and catch per effort of Hauraki Gulf snapper, by month, 1960-71 (continued)**

1964

| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Trawl** | | | | | | | | | | | | |
| No. of boats | 7 | 9 | 11 | 14 | 12 | 12 | 13 | 11 | 10 | 6 | 10 | 12 |
| Total days | 125 | 140 | 223 | 253 | 191 | 217 | 235 | 159 | 200 | 132 | 192 | 175 |
| Total trips | 24 | 26 | 41 | 51 | 37 | 44 | 47 | 31 | 39 | 27 | 35 | 45 |
| Catch | 1 283 | 1 755 | 2 670 | 2 294 | 1 935 | 2 098 | 2 718 | 2 014 | 2 530 | 1 852 | 3 780 | 2 843 |
| Catch per day | 10.3 | 12.5 | 12.0 | 9.1 | 10.1 | 9.7 | 11.6 | 12.7 | 12.7 | 14.0 | 19.7 | 16.2 |
| Catch per trip | 53.5 | 67.5 | 65.1 | 45.0 | 52.3 | 47.7 | 57.8 | 65.0 | 64.9 | 68.6 | 108.0 | 63.2 |
| **Danish seine** | | | | | | | | | | | | |
| No. of boats | 8 | 8 | 7 | 6 | 6 | 7 | 7 | 6 | 8 | 8 | 8 | 8 |
| Total days | 102 | 129 | 102 | 111 | 104 | 107 | 110 | 88 | 128 | 130 | 135 | 133 |
| Total trips | 21 | 26 | 24 | 22 | 21 | 24 | 23 | 18 | 26 | 31 | 29 | 30 |
| Catch | 1 043 | 1 449 | 861 | 726 | 818 | 601 | 525 | 536 | 798 | 1 183 | 2 067 | 2 038 |
| Catch per day | 10.2 | 11.2 | 8.4 | 6.5 | 7.9 | 5.6 | 4.8 | 6.1 | 6.2 | 9.1 | 15.3 | 15.3 |
| Catch per trip | 49.7 | 55.7 | 35.9 | 33.0 | 39.0 | 25.0 | 22.8 | 29.8 | 30.7 | 38.2 | 71.3 | 67.9 |
| **Long-line** | | | | | | | | | | | | |
| No. of boats | 45 | 49 | 51 | 52 | 60 | 54 | 38 | 38 | 39 | 43 | 41 | 44 |
| Total days | 470 | 483 | 507 | 529 | 606 | 501 | 397 | 372 | 406 | 456 | 421 | 465 |
| Total trips | 272 | 291 | 299 | 290 | 330 | 267 | 209 | 221 | 216 | 247 | 244 | 233 |
| Catch | 694 | 568 | 549 | 543 | 696 | 530 | 478 | 442 | 474 | 662 | 814 | 734 |
| Catch per day | 1.5 | 1.2 | 1.1 | 1.0 | 1.1 | 1.1 | 1.2 | 1.2 | 1.2 | 1.5 | 1.9 | 1.6 |
| Catch per trip | 2.6 | 2.0 | 1.8 | 1.9 | 2.1 | 2.0 | 2.3 | 2.0 | 2.2 | 2.7 | 3.3 | 3.2 |
| **Set net** | | | | | | | | | | | | |
| No. of boats | 30 | 36 | 31 | 29 | 29 | 28 | 24 | 24 | 23 | 24 | 24 | 20 |
| Total days | 318 | 422 | 408 | 379 | 273 | 261 | 282 | 320 | 240 | 295 | 300 | 252 |
| Total trips | 253 | 363 | 297 | 297 | 207 | 201 | 214 | 248 | 201 | 220 | 248 | 221 |
| Catch | 679 | 695 | 1 779 | 1 208 | 679 | 878 | 592 | 1 091 | 1 139 | 585 | 87 | 102 |
| Catch per day | 2.1 | 1.6 | 4.4 | 3.2 | 2.5 | 3.4 | 2.1 | 3.4 | 4.7 | 2.0 | 0.3 | 0.4 |
| Catch per trip | 2.7 | 1.9 | 6.0 | 4.1 | 3.3 | 4.4 | 2.8 | 4.4 | 5.7 | 2.7 | 0.4 | 0.5 |
| Total catch | 3 699 | 4 467 | 5 859 | 4 771 | 4 128 | 4 107 | 4 313 | 4 083 | 4 941 | 4 282 | 6 748 | 5 717 |

1965

| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Trawl** | | | | | | | | | | | | |
| No. of boats | 8 | 16 | 11 | 11 | 13 | 10 | 10 | 13 | 14 | 13 | 11 | 12 |
| Total days | 90 | 274 | 232 | 189 | 238 | 85 | 200 | 252 | 280 | 217 | 226 | 223 |
| Total trips | 20 | 52 | 43 | 36 | 43 | 17 | 39 | 42 | 50 | 39 | 38 | 39 |
| Catch | 1 634 | 3 586 | 2 646 | 2 007 | 2 267 | 806 | 1 674 | 1 166 | 2 302 | 2 273 | 1 835 | 1 798 |
| Catch per day | 18.2 | 13.1 | 11.4 | 10.6 | 9.5 | 9.5 | 8.4 | 4.6 | 8.2 | 10.5 | 8.1 | 8.1 |
| Catch per trip | 81.7 | 69.0 | 61.5 | 55.8 | 52.7 | 47.4 | 42.9 | 27.8 | 46.0 | 58.3 | 48.3 | 46.1 |
| **Danish seine** | | | | | | | | | | | | |
| No. of boats | 8 | 8 | 10 | 7 | 6 | 7 | 6 | 6 | 9 | 10 | 10 | 10 |
| Total days | 87 | 98 | 173 | 123 | 92 | 68 | 90 | 92 | 145 | 134 | 155 | 152 |
| Total trips | 18 | 24 | 40 | 30 | 21 | 17 | 24 | 21 | 39 | 32 | 38 | 34 |
| Catch | 1 139 | 766 | 905 | 928 | 732 | 518 | 519 | 635 | 919 | 1 215 | 2 142 | 2 235 |
| Catch per day | 13.1 | 7.8 | 5.2 | 7.5 | 8.0 | 7.6 | 5.8 | 6.9 | 6.3 | 9.1 | 13.8 | 14.7 |
| Catch per trip | 63.3 | 31.9 | 22.6 | 30.9 | 34.9 | 30.5 | 21.6 | 30.2 | 23.6 | 38.0 | 56.4 | 65.7 |
| **Long-line** | | | | | | | | | | | | |
| No. of boats | 39 | 45 | 49 | 48 | 48 | 45 | 31 | 35 | 37 | 56 | 51 | 48 |
| Total days | 261 | 434 | 432 | 433 | 421 | 332 | 293 | 294 | 323 | 494 | 469 | 369 |
| Total trips | 182 | 231 | 234 | 229 | 277 | 222 | 162 | 181 | 209 | 329 | 304 | 259 |
| Catch | 348 | 479 | 610 | 455 | 610 | 425 | 332 | 690 | 549 | 945 | 840 | 663 |
| Catch per day | 1.3 | 1.1 | 1.4 | 1.1 | 1.4 | 1.3 | 1.1 | 2.3 | 1.7 | 1.9 | 1.8 | 1.8 |
| Catch per trip | 1.9 | 2.1 | 2.6 | 2.0 | 2.2 | 1.9 | 2.0 | 3.8 | 2.6 | 2.9 | 2.8 | 2.6 |
| **Set net** | | | | | | | | | | | | |
| No. of boats | 26 | 27 | 28 | 23 | 19 | 19 | 16 | 23 | 19 | 21 | 19 | 15 |
| Total days | 323 | 316 | 337 | 248 | 225 | 251 | 204 | 242 | 264 | 260 | 218 | 229 |
| Total trips | 281 | 267 | 296 | 226 | 209 | 212 | 181 | 200 | 201 | 226 | 187 | 196 |
| Catch | 410 | 1 177 | 822 | 475 | 506 | 518 | 670 | 593 | 856 | 619 | 187 | 176 |
| Catch per day | 1.3 | 3.7 | 2.4 | 1.9 | 2.2 | 2.1 | 3.3 | 2.5 | 3.2 | 2.4 | 0.9 | 0.8 |
| Catch per trip | 1.5 | 4.4 | 2.8 | 2.1 | 2.4 | 2.4 | 3.7 | 3.0 | 4.3 | 2.7 | 1.0 | 0.9 |
| Total catch | 3 531 | 6 008 | 4 983 | 3 865 | 4 115 | 2 267 | 3 195 | 3 084 | 4 626 | 5 052 | 5 004 | 4 872 |

**TABLE 24: Catch and catch per effort of Hauraki Gulf snapper, by month, 1960-71 (continued)**

1966

| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Trawl** | | | | | | | | | | | | |
| No. of boats | 7 | 11 | 12 | 17 | 18 | 18 | 12 | 17 | 13 | 12 | 10 | 10 |
| Total days | 113 | 198 | 254 | 291 | 364 | 346 | 236 | 342 | 273 | 217 | 162 | 150 |
| Total trips | 19 | 33 | 45 | 50 | 62 | 56 | 41 | 57 | 47 | 38 | 27 | 24 |
| Catch | 742 | 2 032 | 2 447 | 2 366 | 3 021 | 2 317 | 1 993 | 2 232 | 2 854 | 2 675 | 2 335 | 1 652 |
| Catch per day | 6.6 | 10.3 | 9.6 | 8.1 | 8.3 | 6.7 | 8.4 | 6.5 | 10.5 | 12.3 | 14.4 | 11.0 |
| Catch per trip | 39.1 | 61.6 | 54.4 | 47.3 | 48.7 | 41.4 | 48.6 | 39.2 | 60.7 | 70.4 | 86.5 | 68.8 |
| **Danish seine** | | | | | | | | | | | | |
| No. of boats | 8 | 10 | 8 | 11 | 10 | 11 | 9 | 8 | 9 | 11 | 11 | 12 |
| Total days | 103 | 150 | 121 | 154 | 155 | 139 | 148 | 135 | 121 | 165 | 151 | 152 |
| Total trips | 26 | 42 | 33 | 38 | 35 | 35 | 47 | 33 | 28 | 38 | 32 | 37 |
| Catch | 1 246 | 1 411 | 801 | 1 125 | 1 085 | 1 162 | 906 | 1 259 | 1 327 | 2 944 | 3 026 | 2 432 |
| Catch per day | 12.1 | 9.4 | 6.6 | 7.3 | 7.0 | 8.4 | 6.1 | 9.3 | 11.0 | 17.8 | 20.0 | 16.0 |
| Catch per trip | 47.9 | 33.6 | 24.3 | 29.6 | 31.0 | 33.2 | 19.3 | 38.2 | 47.4 | 77.5 | 94.6 | 65.7 |
| **Long-line** | | | | | | | | | | | | |
| No. of boats | 40 | 44 | 52 | 56 | 58 | 55 | 45 | 50 | 57 | 61 | 54 | 57 |
| Total days | 356 | 374 | 415 | 559 | 524 | 445 | 447 | 457 | 560 | 618 | 423 | 434 |
| Total trips | 263 | 267 | 303 | 376 | 331 | 272 | 256 | 289 | 317 | 386 | 273 | 239 |
| Catch | 578 | 562 | 624 | 1 044 | 920 | 723 | 684 | 824 | 982 | 1 275 | 803 | 732 |
| Catch per day | 1.6 | 1.5 | 1.5 | 1.9 | 1.8 | 1.6 | 1.5 | 1.8 | 1.8 | 2.1 | 1.9 | 1.7 |
| Catch per trip | 2.2 | 2.1 | 2.1 | 2.8 | 2.8 | 2.7 | 2.7 | 2.9 | 3.1 | 3.3 | 2.9 | 3.1 |
| **Set net** | | | | | | | | | | | | |
| No. of boats | 28 | 27 | 31 | 28 | 21 | 26 | 21 | 20 | 26 | 28 | 20 | 22 |
| Total days | 323 | 316 | 351 | 295 | 225 | 303 | 244 | 298 | 358 | 353 | 262 | 241 |
| Total trips | 257 | 268 | 315 | 235 | 189 | 229 | 224 | 256 | 306 | 268 | 180 | 198 |
| Catch | 528 | 1 012 | 1 203 | 765 | 601 | 470 | 510 | 772 | 1 235 | 926 | 393 | 180 |
| Catch per day | 1.6 | 3.2 | 3.4 | 2.6 | 2.7 | 1.6 | 2.1 | 2.6 | 3.4 | 2.6 | 1.5 | 0.7 |
| Catch per trip | 2.1 | 3.8 | 3.8 | 3.3 | 3.2 | 2.1 | 2.3 | 3.0 | 4.0 | 3.5 | 2.2 | 0.9 |
| Total catch | 3 094 | 5 017 | 5 075 | 5 300 | 5 627 | 4 672 | 4 093 | 5 087 | 6 398 | 7 820 | 6 557 | 4 996 |

1967

| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Trawl** | | | | | | | | | | | | |
| No. of boats | 12 | 8 | 15 | 12 | 14 | 12 | 12 | 13 | 13 | 13 | 11 | 11 |
| Total days | 192 | 121 | 257 | 211 | 295 | 234 | 222 | 275 | 213 | 229 | 184 | 114 |
| Total trips | 31 | 22 | 43 | 36 | 53 | 42 | 48 | 48 | 42 | 45 | 40 | 23 |
| Catch | 2 030 | 1 947 | 3 339 | 2 882 | 3 631 | 3 992 | 2 607 | 4 211 | 3 417 | 3 201 | 2 630 | 1 459 |
| Catch per day | 10.6 | 16.1 | 13.0 | 13.7 | 12.3 | 17.1 | 11.7 | 15.3 | 16.0 | 14.0 | 14.3 | 12.8 |
| Catch per trip | 65.5 | 88.5 | 77.7 | 80.1 | 68.5 | 95.0 | 54.3 | 87.7 | 81.4 | 71.1 | 65.8 | 63.4 |
| **Danish seine** | | | | | | | | | | | | |
| No. of boats | 10 | 10 | 9 | 9 | 9 | 9 | 10 | 9 | 9 | 10 | 10 | 9 |
| Total days | 102 | 160 | 116 | 110 | 152 | 171 | 130 | 139 | 117 | 165 | 158 | 99 |
| Total trips | 31 | 37 | 26 | 30 | 35 | 34 | 34 | 30 | 26 | 37 | 35 | 25 |
| Catch | 1 456 | 1 562 | 847 | 955 | 1 213 | 1 427 | 1 239 | 931 | 960 | 2 532 | 2 325 | 1 668 |
| Catch per day | 14.3 | 9.8 | 7.3 | 8.7 | 8.0 | 8.3 | 9.5 | 6.7 | 8.2 | 15.3 | 14.7 | 16.8 |
| Catch per trip | 47.0 | 42.2 | 32.6 | 31.8 | 34.7 | 42.0 | 36.4 | 31.0 | 36.9 | 68.4 | 66.4 | 66.7 |
| **Long-line** | | | | | | | | | | | | |
| No. of boats | 59 | 64 | 48 | 52 | 54 | 58 | 57 | 52 | 66 | 63 | 59 | 56 |
| Total days | 480 | 516 | 362 | 475 | 449 | 533 | 492 | 393 | 524 | 546 | 442 | 472 |
| Total trips | 304 | 314 | 206 | 273 | 282 | 297 | 277 | 246 | 337 | 335 | 278 | 302 |
| Catch | 868 | 897 | 727 | 861 | 865 | 1 049 | 1 046 | 706 | 1 082 | 1 435 | 979 | 1 025 |
| Catch per day | 1.8 | 1.7 | 2.0 | 1.8 | 1.9 | 2.0 | 2.1 | 1.8 | 2.1 | 2.6 | 2.2 | 2.2 |
| Catch per trip | 2.9 | 2.9 | 3.5 | 3.2 | 3.1 | 3.5 | 3.8 | 2.9 | 3.2 | 4.3 | 3.5 | 3.4 |
| **Set net** | | | | | | | | | | | | |
| No. of boats | 25 | 30 | 31 | 33 | 28 | 21 | 21 | 25 | 34 | 27 | 26 | 25 |
| Total days | 286 | 258 | 336 | 345 | 285 | 266 | 245 | 288 | 367 | 316 | 320 | 203 |
| Total trips | 242 | 212 | 288 | 255 | 215 | 188 | 186 | 216 | 290 | 224 | 228 | 146 |
| Catch | 364 | 443 | 713 | 667 | 308 | 218 | 306 | 497 | 607 | 424 | 209 | 270 |
| Catch per day | 1.3 | 1.7 | 2.1 | 1.9 | 1.1 | 0.8 | 1.2 | 1.7 | 1.7 | 1.3 | 0.7 | 1.3 |
| Catch per trip | 1.5 | 2.1 | 2.5 | 2.6 | 1.4 | 1.2 | 1.6 | 2.3 | 2.1 | 1.9 | 0.9 | 1.8 |
| Total catch | 4 718 | 4 849 | 5 626 | 5 365 | 6 017 | 6 686 | 5 198 | 6 345 | 6 066 | 7 592 | 6 143 | 4 422 |

**TABLE 24: Catch and catch per effort of Hauraki Gulf snapper, by month, 1960-71 (continued)**

1968

| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Trawl** | | | | | | | | | | | | |
| No. of boats | 11 | 14 | 11 | 13 | 15 | 12 | 11 | 10 | 9 | 10 | 12 | 15 |
| Total days | 169 | 234 | 249 | 228 | 259 | 213 | 212 | 182 | 165 | 185 | 224 | 228 |
| Total trips | 35 | 46 | 45 | 43 | 49 | 35 | 35 | 32 | 29 | 34 | 40 | 42 |
| Catch | 2 385 | 2 713 | 2 622 | 2 829 | 2 877 | 2 403 | 1 948 | 4 532 | 1 995 | 2 851 | 4 150 | 4 339 |
| Catch per day | 14.1 | 11.6 | 10.5 | 12.4 | 11.1 | 11.3 | 9.2 | 24.9 | 12.1 | 15.4 | 18.5 | 19.0 |
| Catch per trip | 68.1 | 59.0 | 58.3 | 65.8 | 58.7 | 68.7 | 55.7 | 141.6 | 68.8 | 83.9 | 103.8 | 103.3 |
| **Danish seine** | | | | | | | | | | | | |
| No. of boats | 10 | 10 | 10 | 7 | 9 | 9 | 10 | 9 | 10 | 10 | 12 | 14 |
| Total days | 156 | 139 | 116 | 72 | 112 | 136 | 142 | 131 | 159 | 140 | 193 | 172 |
| Total trips | 38 | 32 | 29 | 19 | 28 | 31 | 33 | 36 | 45 | 38 | 63 | 55 |
| Catch | 2 417 | 1 231 | 1 062 | 604 | 823 | 1 075 | 1 291 | 4 195 | 3 079 | 4 407 | 6 542 | 5 916 |
| Catch per day | 15.5 | 8.9 | 9.2 | 8.4 | 7.3 | 7.9 | 9.1 | 32.0 | 19.4 | 31.5 | 33.9 | 34.4 |
| Catch per trip | 63.6 | 38.5 | 36.6 | 31.8 | 29.4 | 34.7 | 39.1 | 116.5 | 68.4 | 116.0 | 103.8 | 107.6 |
| **Long-line** | | | | | | | | | | | | |
| No. of boats | 55 | 58 | 61 | 66 | 68 | 61 | 55 | 54 | 53 | 59 | 58 | 58 |
| Total days | 416 | 471 | 444 | 427 | 574 | 448 | 503 | 441 | 432 | 483 | 491 | 425 |
| Total trips | 289 | 297 | 277 | 260 | 320 | 245 | 268 | 243 | 259 | 295 | 290 | 233 |
| Catch | 899 | 1 055 | 944 | 949 | 1 165 | 903 | 1 047 | 2 105 | 958 | 1 210 | 1 882 | 1 470 |
| Catch per day | 2.2 | 2.2 | 2.1 | 2.2 | 2.0 | 2.0 | 2.1 | 4.8 | 2.2 | 2.5 | 3.8 | 3.5 |
| Catch per trip | 3.1 | 3.6 | 3.4 | 3.7 | 3.6 | 3.7 | 3.9 | 8.7 | 3.7 | 4.1 | 6.5 | 6.3 |
| **Set net** | | | | | | | | | | | | |
| No. of boats | 39 | 36 | 34 | 31 | 28 | 21 | 26 | 30 | 35 | 30 | 30 | 31 |
| Total days | 347 | 384 | 378 | 289 | 278 | 215 | 310 | 335 | 364 | 322 | 389 | 356 |
| Total trips | 267 | 299 | 266 | 237 | 194 | 150 | 218 | 248 | 266 | 217 | 268 | 265 |
| Catch | 441 | 647 | 795 | 828 | 503 | 454 | 565 | 1 893 | 1 341 | 961 | 374 | 102 |
| Catch per day | 1.3 | 1.7 | 2.1 | 2.9 | 1.8 | 2.1 | 1.8 | 5.7 | 3.7 | 3.0 | 1.0 | 0.3 |
| Catch per trip | 1.7 | 2.2 | 3.0 | 3.5 | 2.6 | 3.0 | 2.6 | 7.6 | 5.0 | 4.4 | 1.4 | 0.4 |
| Total catch | 6 142 | 5 646 | 5 423 | 5 210 | 5 368 | 4 835 | 4 851 | 12 725 | 7 373 | 9 429 | 12 948 | 11 827 |

1969

| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Trawl** | | | | | | | | | | | | |
| No. of boats | 15 | 12 | 14 | 11 | 12 | 13 | 13 | 12 | 14 | 17 | 13 | 13 |
| Total days | 251 | 180 | 248 | 195 | 216 | 212 | 138 | 107 | 267 | 284 | 219 | 169 |
| Total trips | 44 | 32 | 44 | 35 | 38 | 39 | 26 | 21 | 49 | 55 | 48 | 33 |
| Catch | 4 016 | 2 621 | 2 898 | 2 290 | 1 967 | 2 133 | 1 257 | 1 127 | 3 536 | 4 424 | 4 174 | 3 766 |
| Catch per day | 16.0 | 14.6 | 11.7 | 11.7 | 9.1 | 10.1 | 9.1 | 10.5 | 13.2 | 15.6 | 19.1 | 22.3 |
| Catch per trip | 91.3 | 81.9 | 65.9 | 65.4 | 51.8 | 54.7 | 48.3 | 53.7 | 72.2 | 80.4 | 87.0 | 114.1 |
| **Danish seine** | | | | | | | | | | | | |
| No. of boats | 14 | 12 | 12 | 11 | 12 | 13 | 13 | 14 | 17 | 19 | 18 | 14 |
| Total days | 200 | 125 | 161 | 153 | 179 | 130 | 109 | 102 | 248 | 260 | 263 | 150 |
| Total trips | 79 | 48 | 54 | 44 | 59 | 44 | 54 | 39 | 80 | 90 | 103 | 58 |
| Catch | 7 278 | 2 606 | 2 489 | 1 756 | 2 166 | 1 735 | 1 888 | 1 447 | 5 139 | 5 749 | 9 285 | 5 085 |
| Catch per day | 36.4 | 20.8 | 15.5 | 11.5 | 12.1 | 13.3 | 17.3 | 14.2 | 20.7 | 22.1 | 35.3 | 33.9 |
| Catch per trip | 92.1 | 54.3 | 46.1 | 39.9 | 36.7 | 39.4 | 35.0 | 37.1 | 64.2 | 63.9 | 90.1 | 87.7 |
| **Long-line** | | | | | | | | | | | | |
| No. of boats | 54 | 56 | 68 | 58 | 65 | 60 | 52 | 57 | 64 | 60 | 77 | 66 |
| Total days | 410 | 337 | 536 | 362 | 619 | 465 | 451 | 482 | 478 | 518 | 642 | 428 |
| Total trips | 243 | 197 | 293 | 222 | 344 | 252 | 249 | 252 | 270 | 289 | 366 | 269 |
| Catch | 975 | 664 | 1 064 | 665 | 1 171 | 883 | 874 | 797 | 788 | 1 108 | 1 737 | 1 046 |
| Catch per day | 2.4 | 2.0 | 2.0 | 1.8 | 1.9 | 1.9 | 1.9 | 1.7 | 1.6 | 2.1 | 2.7 | 2.4 |
| Catch per trip | 4.0 | 3.4 | 3.6 | 3.0 | 3.4 | 3.5 | 3.5 | 3.2 | 2.9 | 3.8 | 4.7 | 3.9 |
| **Set net** | | | | | | | | | | | | |
| No. of boats | 36 | 39 | 33 | 28 | 26 | 22 | 25 | 28 | 36 | 30 | 31 | 32 |
| Total days | 384 | 427 | 419 | 302 | 277 | 239 | 333 | 363 | 377 | 393 | 368 | 355 |
| Total trips | 310 | 296 | 301 | 244 | 209 | 172 | 223 | 250 | 278 | 282 | 282 | 278 |
| Catch | 468 | 861 | 758 | 531 | 361 | 258 | 515 | 659 | 762 | 372 | 181 | 291 |
| Catch per day | 1.2 | 2.0 | 1.8 | 1.8 | 1.3 | 1.1 | 1.5 | 1.8 | 2.0 | 0.9 | 0.5 | 0.8 |
| Catch per trip | 1.5 | 2.9 | 2.5 | 2.2 | 1.7 | 1.5 | 2.3 | 2.6 | 2.7 | 1.3 | 0.6 | 1.0 |
| Total catch | 12 737 | 6 752 | 7 209 | 5 242 | 5 665 | 5 009 | 4 534 | 4 030 | 10 225 | 11 653 | 15 377 | 10 188 |

**TABLE 24: Catch and catch per effort of Hauraki Gulf snapper, by month, 1960-71 (continued)**

| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 1970 | | | | | | |
| **Trawl** | | | | | | | | | | | | |
| No. of boats | 15 | 11 | 11 | 12 | 13 | 14 | 14 | 15 | 12 | 13 | 12 | 20 |
| Total days | 210 | 185 | 203 | 202 | 201 | 236 | 208 | 233 | 187 | 197 | 204 | 349 |
| Total trips | 41 | 34 | 35 | 33 | 35 | 43 | 43 | 42 | 35 | 38 | 39 | 62 |
| Catch | 2 748 | 3 070 | 2 492 | 2 232 | 1 852 | 2 713 | 2 018 | 2 211 | 2 574 | 1 944 | 3 890 | 5 039 |
| Catch per day | 13.1 | 16.6 | 12.3 | 11.0 | 9.2 | 11.5 | 9.7 | 9.5 | 13.8 | 9.9 | 19.1 | 14.4 |
| Catch per trip | 67.0 | 90.3 | 71.2 | 67.6 | 52.9 | 63.1 | 46.9 | 52.6 | 73.5 | 51.2 | 99.7 | 81.3 |
| **Danish seine** | | | | | | | | | | | | |
| No. of boats | 23 | 26 | 25 | 23 | 25 | 24 | 21 | 21 | 22 | 30 | 36 | 32 |
| Total days | 215 | 232 | 253 | 265 | 293 | 262 | 277 | 230 | 266 | 381 | 591 | 342 |
| Total trips | 96 | 104 | 106 | 89 | 74 | 82 | 75 | 60 | 74 | 117 | 183 | 110 |
| Catch | 4 654 | 4 418 | 4 295 | 3 702 | 2 676 | 2 102 | 1 805 | 2 235 | 2 862 | 7 985 | 21 253 | 10 109 |
| Catch per day | 21.6 | 19.0 | 17.0 | 14.0 | 9.1 | 8.0 | 6.5 | 9.7 | 10.8 | 21.0 | 36.0 | 29.6 |
| Catch per trip | 48.5 | 42.5 | 40.5 | 41.6 | 36.2 | 25.6 | 24.1 | 37.3 | 38.7 | 68.2 | 116.1 | 91.9 |
| **Long-line** | | | | | | | | | | | | |
| No. of boats | 59 | 61 | 63 | 61 | 60 | 64 | 54 | 54 | 63 | 68 | 70 | 60 |
| Total days | 424 | 481 | 401 | 500 | 516 | 559 | 547 | 416 | 488 | 528 | 619 | 450 |
| Total trips | 273 | 285 | 234 | 306 | 262 | 300 | 296 | 233 | 280 | 304 | 359 | 268 |
| Catch | 1 188 | 999 | 712 | 883 | 1 222 | 1 242 | 1 085 | 805 | 1 088 | 1 271 | 1 888 | 1 041 |
| Catch per day | 2.8 | 2.1 | 1.8 | 1.8 | 2.4 | 2.2 | 2.0 | 1.9 | 2.2 | 2.4 | 3.1 | 2.3 |
| Catch per trip | 4.4 | 3.5 | 3.0 | 2.9 | 4.7 | 4.1 | 3.7 | 3.5 | 3.9 | 4.2 | 5.3 | 3.9 |
| **Set net** | | | | | | | | | | | | |
| No. of boats | 37 | 31 | 41 | 39 | 31 | 21 | 19 | 19 | 23 | 25 | 25 | 23 |
| Total days | 349 | 380 | 398 | 400 | 321 | 168 | 232 | 242 | 260 | 273 | 303 | 226 |
| Total trips | 256 | 276 | 283 | 296 | 235 | 131 | 176 | 175 | 176 | 193 | 216 | 168 |
| Catch | 804 | 871 | 1 014 | 1 105 | 804 | 299 | 219 | 518 | 1 010 | 835 | 529 | 201 |
| Catch per day | 2.3 | 2.3 | 2.5 | 2.8 | 2.5 | 1.8 | 0.9 | 2.1 | 3.9 | 3.1 | 1.7 | 0.9 |
| Catch per trip | 3.1 | 3.2 | 3.6 | 3.7 | 3.4 | 2.3 | 1.2 | 3.0 | 5.7 | 4.3 | 2.4 | 1.2 |
| Total catch | 9 394 | 9 358 | 8 513 | 7 922 | 6 554 | 6 356 | 5 127 | 5 769 | 7 534 | 12 035 | 27 560 | 16 390 |
| | | | | | | 1971 | | | | | | |
| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| **Trawl** | | | | | | | | | | | | |
| No. of boats | 15 | 14 | 16 | 18 | 14 | 21 | 18 | 17 | 14 | 13 | 12 | 13 |
| Total days | 211 | 208 | 281 | 296 | 257 | 342 | 256 | 280 | 218 | 174 | 200 | 176 |
| Total trips | 39 | 36 | 54 | 58 | 47 | 57 | 46 | 48 | 40 | 31 | 33 | 32 |
| Catch | 3 059 | 3 141 | 4 184 | 3 503 | 3 464 | 3 488 | 2 425 | 3 282 | 2 719 | 1 950 | 3 459 | 4 457 |
| Catch per day | 14.5 | 15.1 | 14.9 | 11.8 | 13.5 | 10.2 | 9.5 | 11.7 | 12.5 | 11.2 | 17.3 | 25.3 |
| Catch per trip | 78.4 | 87.3 | 77.5 | 60.4 | 73.7 | 61.2 | 52.7 | 68.4 | 68.0 | 62.9 | 104.8 | 139.3 |
| **Danish seine** | | | | | | | | | | | | |
| No. of boats | 31 | 33 | 32 | 25 | 23 | 28 | 28 | 28 | 32 | 34 | 35 | 37 |
| Total days | 328 | 323 | 328 | 314 | 276 | 330 | 311 | 342 | 347 | 448 | 587 | 447 |
| Total trips | 104 | 96 | 114 | 86 | 77 | 90 | 76 | 81 | 97 | 131 | 178 | 157 |
| Catch | 8 440 | 4 777 | 3 477 | 2 624 | 2 132 | 2 921 | 2 877 | 4 534 | 6 166 | 9 737 | 19 893 | 12 573 |
| Catch per day | 25.7 | 14.8 | 10.6 | 8.4 | 7.7 | 8.9 | 9.3 | 13.3 | 17.8 | 21.7 | 33.9 | 28.1 |
| Catch per trip | 81.2 | 49.8 | 30.5 | 30.5 | 27.7 | 32.5 | 37.9 | 56.0 | 63.6 | 74.3 | 111.8 | 80.1 |
| **Long-line** | | | | | | | | | | | | |
| No. of boats | 57 | 66 | 70 | 66 | 63 | 59 | 58 | 64 | 60 | 71 | 58 | 59 |
| Total days | 395 | 409 | 572 | 481 | 546 | 534 | 474 | 485 | 472 | 616 | 504 | 415 |
| Total trips | 268 | 242 | 352 | 277 | 312 | 309 | 256 | 283 | 262 | 325 | 324 | 240 |
| Catch | 1 005 | 1 166 | 1 259 | 966 | 1 175 | 1 162 | 1 003 | 1 058 | 1 093 | 1 351 | 1 062 | 989 |
| Catch per day | 2.5 | 2.9 | 2.2 | 2.0 | 2.2 | 2.2 | 2.1 | 2.2 | 2.3 | 2.2 | 2.1 | 2.4 |
| Catch per trip | 3.8 | 4.8 | 3.6 | 3.5 | 3.8 | 3.8 | 3.9 | 3.7 | 4.2 | 4.2 | 3.3 | 4.1 |
| **Set net** | | | | | | | | | | | | |
| No. of boats | 27 | 37 | 33 | 33 | 26 | 27 | 21 | 23 | 25 | 24 | 18 | 19 |
| Total days | 250 | 346 | 366 | 368 | 264 | 261 | 187 | 195 | 241 | 173 | 183 | 169 |
| Total trips | 194 | 236 | 232 | 232 | 178 | 171 | 144 | 165 | 204 | 133 | 144 | 133 |
| Catch | 627 | 901 | 1 154 | 582 | 553 | 441 | 311 | 353 | 1 034 | 526 | 172 | 107 |
| Catch per day | 2.5 | 2.6 | 3.2 | 1.6 | 2.1 | 1.7 | 1.7 | 1.8 | 4.3 | 3.0 | 0.9 | 0.6 |
| Catch per trip | 3.2 | 3.8 | 5.0 | 2.5 | 3.1 | 2.6 | 2.2 | 2.1 | 5.1 | 4.0 | 1.2 | 0.8 |
| Total catch | 13 131 | 9 985 | 10 074 | 7 675 | 7 324 | 8 012 | 6 616 | 9 227 | 11 012 | 13 564 | 24 586 | 18 126 |

**TABLE 25: Weights and landed values (prices paid to fishermen) of New Zealand snapper and tarakihi landings, 1936-71**

| Year | Snapper | | | Tarakihi | | |
|---|---|---|---|---|---|---|
| | Weight (cwt) | Value ($) | Price (cents per lb) | Weight (cwt) | Value ($) | Price (cents per lb) |
| 1936 | 142 425 | 220 758 | 1.4 | 53 114 | 102 984 | 1.7 |
| 1937 | 127 850 | 241 070 | 1.7 | 56 332 | 112 180 | 1.8 |
| 1938 | 137 811 | 263 066 | 1.7 | 53 652 | 110 532 | 1.8 |
| 1939 | 133 057 | 256 354 | 1.7 | 49 236 | 95 598 | 1.7 |
| 1940 | 116 854 | 228 442 | 1.7 | 45 334 | 106 206 | 2.1 |
| 1941 | 111 027 | 241 694 | 1.9 | 44 073 | 113 342 | 2.3 |
| 1942 | 94 300 | 206 392 | 2.0 | 40 948 | 106 962 | 2.3 |
| 1943 | 100 542 | 245 644 | 2.2 | 29 311 | 87 166 | 2.7 |
| 1944 | 109 013 | 286 242 | 2.3 | 44 980 | 137 804 | 2.7 |
| 1945 | 109 009 | 295 370 | 2.4 | 63 829 | 194 014 | 2.7 |
| 1946 | 116 832 | 317 946 | 2.4 | 77 927 | 255 178 | 2.9 |
| 1947 | 129 482 | 361 106 | 2.5 | 91 692 | 315 446 | 3.1 |
| 1948 | 148 828 | 468 448 | 2.8 | 93 251 | 327 016 | 3.1 |
| 1949 | 134 517 | 429 866 | 2.9 | 111 010 | 386 708 | 3.1 |
| 1950 | 122 595 | 452 376 | 3.3 | 108 771 | 391 566 | 3.2 |
| 1951 | 108 438 | 429 464 | 3.5 | 110 504 | 447 112 | 3.6 |
| 1952 | 97 320 | 445 518 | 4.1 | 118 675 | 526 256 | 4.0 |
| 1953 | 109 798 | 510 050 | 4.1 | 115 521 | 524 866 | 4.1 |
| 1954 | 120 097 | 578 234 | 4.3 | 85 561 | 389 522 | 4.1 |
| 1955 | 127 210 | 650 020 | 4.6 | 111 771 | 546 216 | 4.4 |
| 1956 | 139 739 | 730 196 | 4.7 | 103 795 | 507 986 | 4.4 |
| 1957 | 162 789 | 846 110 | 4.6 | 109 003 | 595 566 | 4.9 |
| 1958 | 147 435 | 776 456 | 4.7 | 104 404 | 569 764 | 4.9 |
| 1959 | 155 860 | 809 468 | 4.6 | 121 338 | 607 894 | 4.5 |
| 1960 | 156 779 | 821 596 | 4.7 | 117 617 | 604 658 | 4.6 |
| 1961 | 151 070 | 806 706 | 4.8 | 116 787 | 642 306 | 4.9 |
| 1962 | 159 971 | 864 280 | 4.8 | 123 655 | 709 420 | 5.1 |
| 1963 | 164 845 | 901 900 | 4.9 | 112 182 | 612 178 | 4.9 |
| 1964 | 160 795 | 867 214 | 4.8 | 115 573 | 656 628 | 5.1 |
| 1965 | 169 483 | 969 538 | 5.1 | 118 367 | 696 920 | 5.3 |
| 1966 | 203 990 | 1 215 802 | 5.3 | 122 850 | 722 852 | 5.3 |
| 1967 | 206 889 | 1 248 875 | 5.4 | 124 555 | 752 664 | 5.4 |
| 1968 | 209 418 | 1 276 469 | 5.4 | 110 312 | 698 966 | 5.7 |
| 1969 | 224 525 | 1 494 611 | 5.9 | 71 007 | 508 387 | 6.4 |
| 1970 | 252 204 | 1 801 060 | 6.4 | 102 518 | 738 543 | 6.4 |
| 1971 | 277 397 | 2 157 286 | 6.9 | 102 990 | 792 006 | 6.9 |

**TABLE 26: Weights and landed values (prices paid to fishermen) of snapper and tarakihi, 1936-71, based on Danish seine landings***

| | Snapper | | | Tarakihi | | |
|---|---|---|---|---|---|---|
| Year | Weight (cwt) | Value ($) | Price (cents per lb) | Weight (cwt) | Value ($) | Price (cents per lb) |
| 1936 | 90 255 | 140 952 | 1.4 | 4 337 | 5 970 | 1.2 |
| 1937 | 88 359 | 162 806 | 1.6 | 6 723 | 12 514 | 1.7 |
| 1938 | 94 609 | 176 456 | 1.7 | 4 913 | 9 564 | 1.7 |
| 1939 | 99 382 | 186 524 | 1.7 | 9 206 | 17 518 | 1.7 |
| 1940 | 92 909 | 174 708 | 1.7 | 14 242 | 27 184 | 1.7 |
| 1941 | 88 109 | 185 146 | 1.9 | 13 390 | 28 098 | 1.9 |
| 1942 | 76 290 | 159 936 | 1.9 | 16 931 | 35 526 | 1.9 |
| 1943 | 77 128 | 180 146 | 2.1 | 12 471 | 30 616 | 2.2 |
| 1944 | 81 582 | 206 104 | 2.3 | 18 602 | 46 194 | 2.2 |
| 1945 | 73 163 | 188 630 | 2.3 | 16 183 | 41 618 | 2.3 |
| 1946 | 71 565 | 181 532 | 2.3 | 17 954 | 46 324 | 2.3 |
| 1947 | 68 582 | 179 716 | 2.3 | 15 809 | 41 742 | 2.4 |
| 1948 | 71 701 | 216 666 | 2.7 | 11 404 | 33 786 | 2.6 |
| 1949 | 54 011 | 163 774 | 2.7 | 5 841 | 17 546 | 2.7 |
| 1950 | 34 513 | 122 240 | 3.2 | 3 842 | 12 190 | 2.8 |
| 1951 | 23 432 | 87 760 | 3.3 | 1 807 | 5 552 | 2.7 |
| 1952 | 20 125 | 88 656 | 3.9 | 1 496 | 5 052 | 3.0 |
| 1953 | 20 003 | 88 810 | 4.0 | 1 290 | 4 896 | 3.4 |
| 1954 | 16 383 | 75 410 | 4.1 | 469 | 1 746 | 3.3 |
| 1955 | 16 740 | 78 362 | 4.2 | 1 318 | 4 924 | 3.3 |
| 1956 | 21 000 | 97 380 | 4.1 | 535 | 2 010 | 3.4 |
| 1957 | 26 630 | 122 790 | 4.1 | 467 | 1 752 | 3.3 |
| 1958 | 24 800 | 117 274 | 4.2 | 217 | 900 | 3.7 |
| 1959 | 28 035 | 133 970 | 4.3 | 332 | 1 368 | 3.7 |
| 1960 | 27 079 | 129 526 | 4.3 | 621 | 2 458 | 3.5 |
| 1961 | 26 733 | 129 656 | 4.3 | 172 | 732 | 3.8 |
| 1962 | 24 495 | 122 268 | 4.5 | 70 | 282 | 3.6 |
| 1963 | 26 240 | 125 808 | 4.3 | 233 | 980 | 3.8 |
| 1964 | 17 697 | 86 634 | 4.4 | 47 | 206 | 3.9 |
| 1965 | 19 355 | 102 256 | 4.7 | 29 | 138 | 4.2 |
| 1966 | 22 380 | 120 032 | 4.8 | 70 | 328 | 4.2 |
| 1967 | 21 220 | 117 026 | 4.9 | 94 | 452 | 4.3 |
| 1968 | 36 143 | 193 735 | 4.8 | 109 | 653 | 5.3 |
| 1969 | 66 874 | 448 440 | 5.5 | 11 | 63 | 5.1 |
| 1970 | 91 066 | 601 890 | 5.9 | 261 | 1 843 | 6.3 |
| 1971 | 104 528 | 771 500 | 6.6 | 344 | 2 562 | 6.6 |

* Most Danish seine snapper landings were made at Auckland, and from 1948 to 1968 they were almost exclusively so.

**TABLE 27: New Zealand exports of snapper and tarakihi, by weight and value, 1929-71**

| | Snapper | | | | Tarakihi | | | |
|---|---|---|---|---|---|---|---|---|
| Year | Weight (cwt) | Value ($) | Price (cents per lb) | Weight (Auckland only) (cwt) | Weight (cwt) | Value ($) | Price (cents per lb) | Weight (Auckland only) (cwt) |
| 1929 | 1 845 | 6 360 | 3.1 | 1 617 | —* | — | — | — |
| 1930 | 1 624 | 4 548 | 2.5 | 1 492 | — | — | — | — |
| 1931 | 871 | 2 102 | 2.2 | 839 | — | — | — | — |
| 1932 | 1 796 | 4 814 | 2.4 | 1 735 | — | — | — | — |
| 1933 | 4 407 | 11 544 | 2.3 | 4 326 | — | — | — | — |
| 1934 | 7 352 | 26 582 | 3.2 | 7 191 | — | — | — | — |
| 1935 | 11 532 | 48 748 | 3.8 | 11 133 | — | — | — | — |
| 1936 | 15 512 | 89 948 | 5.2 | 15 185 | — | — | — | — |
| 1937 | 10 604 | 65 874 | 5.5 | 10 076 | 6 654 | 45 696 | 6.1 | 4 460 |
| 1938 | 10 136 | 63 502 | 5.6 | 9 671 | 6 971 | 51 756 | 6.6 | 5 176 |
| 1939 | 8 681 | 56 718 | 5.8 | 8 549 | 4 978 | 39 172 | 7.0 | 4 712 |
| 1940 | 3 805 | 24 812 | 5.8 | 3 225 | 4 607 | 29 104 | 5.6 | 2 267 |
| 1941 | 2 087 | 14 176 | 6.1 | 1 276 | 3 201 | 20 278 | 5.7 | 914 |
| 1942 | 115 | 1 066 | 8.3 | 27 | 1 230 | 9 098 | 6.6 | 12 |
| 1943 | 1 224 | 13 582 | 9.9 | 156 | 1 398 | 8 946 | 5.7 | 79 |
| 1944 | 1 218 | 13 726 | 10.1 | 809 | 959 | 8 060 | 7.5 | 265 |
| 1945 | 752 | 8 488 | 10.1 | 389 | 1 037 | 9 790 | 8.4 | 262 |
| 1946 | 844 | 11 168 | 11.8 | 105 | 1 886 | 21 480 | 10.2 | 22 |
| 1947 | 2 797 | 34 226 | 10.9 | 914 | 5 819 | 66 604 | 10.2 | 99 |
| 1948 | 7 414 | 103 144 | 12.4 | — | 8 160 | 110 936 | 12.1 | — |
| 1949 | 4 438 | 58 436 | 11.8 | — | 10 644 | 138 424 | 11.6 | — |
| 1950 | 4 965 | 69 362 | 12.5 | — | 10 663 | 149 676 | 12.5 | — |
| 1951 | 2 870 | 46 126 | 14.3 | — | 7 693 | 132 994 | 15.4 | — |
| 1952 | 2 582 | 47 712 | 16.5 | — | 9 740 | 180 662 | 16.6 | — |
| 1953 | 4 573 | 86 180 | 16.8 | — | 11 764 | 231 844 | 17.6 | — |
| 1954 | 6 387 | 118 270 | 16.5 | — | 7 272 | 136 076 | 16.7 | — |
| 1955 | 5 546 | 101 366 | 16.3 | — | 12 563 | 218 390 | 15.5 | — |
| 1956 | 7 787 | 140 216 | 16.1 | — | 10 901 | 210 224 | 17.2 | — |
| 1957 | 13 702 | 271 306 | 17.7 | — | 14 260 | 277 454 | 17.4 | — |
| 1958 | 4 614 | 92 872 | 18.0 | — | 11 107 | 249 112 | 20.0 | — |
| 1959 | 7 207 | 133 690 | 16.6 | — | 16 377 | 339 476 | 18.5 | — |
| 1960 | 10 502 | 204 898 | 17.4 | — | 14 382 | 279 282 | 17.3 | — |
| 1961 | 7 475 | 150 932 | 18.0 | — | 10 121 | 207 768 | 18.3 | — |
| 1962 | 12 783 | 166 988 | 11.7† | — | 13 401 | 441 216 | 29.4† | — |
| 1963 | 9 379 | 180 620 | 17.2 | — | 8 009 | 177 946 | 19.8 | — |
| 1964 | 7 397 | 142 052 | 17.1 | — | 10 801 | 261 090 | 21.6 | — |
| 1965 | 10 895 | 214 918 | 17.6 | — | 9 722 | 245 150 | 22.5 | — |
| 1966 | 11 178 | 220 868 | 17.6 | — | 9 853 | 240 418 | 21.8 | — |
| 1967 | 14 979 | 284 581 | 17.0 | — | 13 577 | 298 660 | 19.6 | — |
| 1968 | 24 442 | 502 873 | 18.4 | — | 12 010 | 298 170 | 22.2 | — |
| 1969 | 25 851 | 693 053 | 23.9 | — | 3 520 | 112 103 | 28.4 | — |
| 1970 | 54 206 | 1 475 990 | 24.3 | — | 11 683 | 442 415 | 33.8 | — |
| 1971 | 54 777 | 1 656 057 | 30.2 | — | 10 683 | 385 244 | 36.1 | — |

* A dash indicates that data were not recorded.
† Figures for weights and/or values were obviously incorrect in the original data in the *Report on Fisheries*, but of necessity are repeated here.

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